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COMPUTERWORLD

The Newsweekly for Information Technology Leaders
News updates, features, forums: www.computerworld.com
April 20 1998 • Vol 32 • No 16 • 124 pages • $4/Copy

JavaSoft faces reorg

▸ *Splitting licensing, standards work would appease Sun partners*

By Sharon Gaudin and Carol Sliwa

SUN MICROSYSTEMS INC IS expected to cleave its JavaSoft subsidiary into two separate pieces this week. The surprise move would address simmering problems between JavaSoft and its partners and developers over its conflicting roles as a Java standards-bearer and a money-making licensing operation.

At a Sun conference this week, Chief Operating Officer Ed Zander is expected to discuss reorganization moves that will affect JavaSoft and several divisions within the company, according to sources close to Sun. The changes would likely take effect after June, one source said.

"They're still trying to decide

JavaSoft, page 17

Y2K fixes will hold up bank merger payoffs

By Thomas Hoffman

IT COULD TAKE years before the players in last week's spectacular bank mergers reap any cost savings from systems consolidation, according to battle-scarred CIOs and industry analysts.

That's because all four banks involved in the two mergers intend to complete their year 2000 projects before combining their information systems.

Executives at NationsBank Corp./BankAmerica Corp. and Banc One Corp./First Chicago NBD Corp. expect to close their deals in the fourth quarter.

Y2K, page 16

Banks' estimated IT spending in 1997

BankAmerica	$1.35B
NationsBank	$1.23B
Banc One	$610M
First Chicago NBD	$540M

Source: The Tower Group, Newton, Mass.

IS helps earn Pulitzer

By Julia King

DISASTER RECOVERY

THEY WORE THE hip waders they usually wear duck hunting and set up four makeshift computing centers in less than a week, migrating each time the floodwaters rose.

They borrowed laptops, modems and cellular telephones, cobbling together a computer system that last week helped win their newspaper a Pulitzer Prize for public service.

They are Dewey Kvidt and his seven-member information systems team at *The Grand Forks Herald*, which published without fail through the hell and high water of last April's devastating floods and fire in that North Dakota city.

A year later, Kvidt, the paper's IS director, makes it all sound like a homespun Garrison Keillor tale, with wives, neighbors and children pitching in. Even the owner of Lunseth Plumbing & Heating Co. did his part ferrying Kvidt downtown to retrieve backup tapes the day after the waters breached the banks of the Red River of the North.

That was the same day the *Herald*'s reporters and editors, flooded out of their offices downtown, set up shop at the University of North Dakota on the west side of the city.

"We found a networked computer lab, set up modems, and the reporters came in to type up their stories," Kvidt said. The re-

Unsung heroes, page 14

Figuring PC costs

Ever try to figure out what mainframes, PCs and networks **really** cost? An insurance company spent months building a **cost model.** It will be available **free** at *www.genaccus.com/tco.htm.*

Corporate Strategies, 43

Management tool to aid older PCs

By April Jacobs

OFFICIALS AT IBM and Intel Corp. last week confirmed they are working to deliver a product that gives older PCs some of the same manageability features that are going into the latest Pentium II-based machines.

Sources familiar with Intel and IBM's plans said the companies are prepping a software tool that would let information systems managers perform

Pumping up, page 113

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UP FRONT

Celeron

Every now and then, PC makers get it in their minds to take a winning product, hack off a few limbs and sell the remains as a low-cost "lite" version. Such retro-thinking leads to products such as Microsoft Works and the NetPC — in other words, duds.

Intel trotted out the same strategy last week with Celeron, a hobbled version of the Pentium II that is aimed at sub-$1,000 PCs. But buyers should be cautious of this animal because Intel doesn't plan to make it much of a success.

Intel isn't committed to making Celeron a success

Intel came up with Celeron by disabling a performance-enhancing memory cache and making some packaging modifications to a Pentium II. Early reviews have largely panned the chip's performance. For instance, a 266-MHz Celeron system tested by *Computerworld* sister publication PC *World* ran considerably slower than a standard 233-MHz Pentium from Advanced Micro Devices.

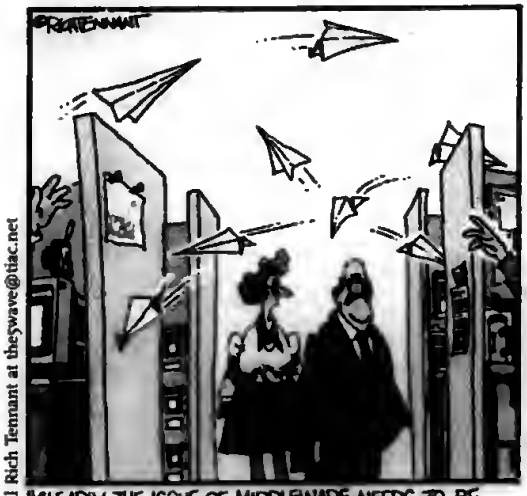
That's no surprise. Celeron is a gap filler, a me-too product Intel will market until it can bring Pentium II prices low enough to compete with AMD and Cyrix. Remember, Intel has done this before. In the early days of the 486, it released a crippled processor called the 486SX that was meant to hold the line against low-cost competitors. But as soon as Intel got its yields high enough to cut 486 prices, it started running ads trashing the SX as a dead end.

No doubt the big PC makers will ship Celeron-based systems to stay on Intel's good side. But there will be no commitment from them, either. Brand-name vendors don't like to sell mass market, low-margin products, and they aren't going to put a big sales or support effort behind those products.

Users shouldn't buy products vendors aren't committed to. It's hard to believe Intel cares much about Celeron.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE



E-Mail Rich Tennant at thefwave@tiac.net

Faulty switches crash AT&T net

▸ *Customers without service for 27 hours*

By Matt Hamblen and Patrick Dryden

A NATIONWIDE AT&T Corp. network crash that disrupted service for thousands of businesses has network managers rethinking their backup plans to protect against future disasters.

Analysts said the crisis underlines the need for options, even with a system viewed as highly reliable as AT&T's frame-relay system. Options could mean keeping inexpensive but slow dial-up connections or adding Asynchronous Transfer Mode, analysts said.

Several thousand businesses were thrown off AT&T's network at about 3 p.m. April 13, with all service restored 27 hours later, AT&T officials said. Chairman C. Michael Armstrong apologized and said customers won't be charged for frame-relay services until a lasting fix is found.

The underlying cause hasn't been discovered and might not be for weeks, an AT&T spokeswoman said. What is known: Two StrataCom switches from Cisco Systems, Inc. in San Jose, Calif., developed an unidentified problem that spread to 145 other switches nationwide. AT&T removed the two switches from the network and then rerouted data traffic around the faulty switches.

AT&T's refund offer was little comfort to network managers who had counted on the nation's largest carrier.

HARD LESSON

"The lesson we all should learn from this crisis is that you plan for the worst case, no matter what Murphy's [Law] does to you. That's our job," said Owen Kelley, vice president of operations at Honor Technologies, Inc., which operates automated teller machines nationwide.

The company requires member banks to have dial-up backup services to the frame-relay network. As a result, Honor was able to quickly restore service after the outage, he said.

Some major frame-relay customers were well-prepared with backup systems, which were often dial-up Integrated Services Digital Network (ISDN) connections provided by the Baby Bells. As a result, several companies said they faced only minor inconveniences. Those companies included MasterCard International, Inc. in Progress, N.Y., and NationsBank Corp. in Charlotte, N.C.

Honor's Owen Kelley: AT&T's crash proves companies should plan for the worst

Visa USA, Inc. in Foster City, Calif., dodged the bullet because it uses a private network for nearly all its connections to merchants and banks, a spokesman said.

ISDN backup helped the American Red Cross in Washington restore connections to nine data centers and 23 regional operations around the country, a spokesman said.

To keep its networks going during the outage, Henkel Surface Technologies, Inc., a chemicals manufacturer in Madison, Mich., left 56K bit/sec. circuits in place late last year to provide backup when AT&T's frame-relay network was connected to its 12 manufacturing facilities.

"It meant almost no loss of business to us during the outage, but we're suffering from quite an added cost to have that backup in place," said Vince Chrisman, manager of information technology at Henkel. □

Taking alternative routes

Volvo's Lars Astrom says the company's network backup plan failed last week

Network managers at Volvo Information Technologies, Inc. in Greensboro, N.C., had a backup plan: The network that serves the company's parts warehouses and administrative offices includes routers designed to kick over to an ISDN backup if the AT&T frame-relay network failed as it did last week.

But the routers didn't perform as expected, said Lars Astrom, vice president of Volvo Information.

As a result, 200 Volvo sites were off the network for up to a day. That meant parts couldn't be ordered or processed, and some sales couldn't be processed between regions of the country.

"There was clearly some economic impact, but we don't know how much," Astrom said. "I'm very, very upset that this could happen. I have no concerns about continuing with AT&T, but this could happen again. We have to prevent it from hurting us."

Network managers at Toyota Motor Sales USA, Inc. in Torrance, Calif., got around the domestic AT&T frame-relay outage by using their international AT&T frame-relay connection to Tokyo, a spokeswoman said.

For example, data that normally goes from a plant in Kentucky to a California office was first sent to Tokyo, then back to California. — Matt Hamblen

PeopleSoft president

David Duffield
talks about the company's efforts in software, its 7.5 release and what's next
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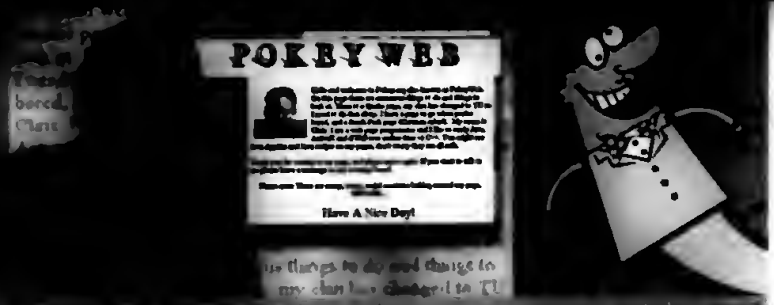

Allen's birthday present.
how the hate guy has little choice in domain disputes.
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ETC.

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NDS use expands; NT interest dulled

▸ *Users laud reductions in management costs*

By Laura DiDio

ONCE UPON A TIME, businesses used Novell, Inc.'s Novell Directory Services (NDS) almost exclusively as a tool to manage NetWare file and print services.

Not anymore. Users have shifted attitudes. They are expanding their NDS usage and taking advantage of its abilities to solve a lot of thorny business problems. Those include automatic directory replication and synchronization, wide-area and Internet access management, proxy caching, automatic software distribution and the repair of damaged applications.

Eleven Fortune 1,000 businesses told *Computerworld* that NDS and its adjunct product, NDS for Windows NT, have helped slash management time and costs by as much as 70%.

Hibernia's Thad Hymel says NDS has saved him administrative costs

"Without NDS, we'd have to double or triple our administrative staff and add support staff to the branch offices," said Thad Hymel, a distributed systems manager at Hibernia National Bank in New Orleans.

NDS lets the bank centrally manage NetWare servers at 250 remote offices in Louisiana and Texas with fewer than 20 network administrators. The service also cut help desk calls in half.

NEW LEASE

Jon Oltsik, an analyst at Forrester Research, Inc. in Cambridge, Mass., said the success in using NDS is recasting NetWare's image. NetWare is no longer just a "legacy file and print network operating system," he said.

But the real test, Oltsik said, will come late this year when Novell delivers the native version of NDS for NT, which won't require NetWare.

The efficiencies delivered by NDS and NDS for NT already have helped information systems departments convince upper management that NetWare is a viable strategic platform and not an interim solution until Windows NT 5.0 and its Active Directory ship next year.

"NDS and NDS for NT are here now. Windows NT 5.0 and the Active Directory are still 'slideware.' Users can't deploy promises," Oltsik said.

"Fifteen months ago, when Novell hit bottom, we were considering becoming an all-NT shop," said Matt Rice, vice president and senior network manager at USTrust Bank in Cambridge, Mass. "Because of NDS for NT, that's not going to happen."

For example, Rice said, he could prove to management that 30% of the calls to USTrust's help desk are related to password-synchronization problems.

"It [now] takes 20 minutes to fix, and we have 2,000 users. Native NDS for NT will eliminate [that problem] entirely," he said.

Avoiding the pain of a wholesale migration also is cementing users' loyalty to Novell.

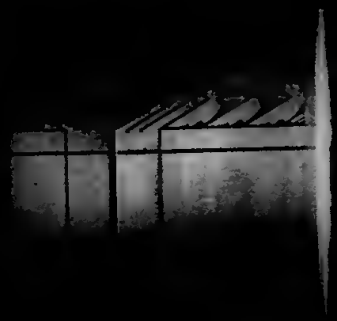
The first three releases of NDS in the early 1990s "were pretty ugly," Rice said.

But now, "Novell has a five-year jump on doing directories with NDS. I don't want to start all over again. There's just not a compelling reason for us to install Windows NT 5.0 as an enterprise [network operating system], especially since by the time it ships in 1999, we'll be running into the year 2000 issue," Rice said.

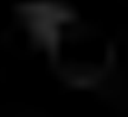
NDS is helping Novell lure crucial third-party developers back to the NetWare platform. One reclaimed developer is Bentana Technologies, Inc. in East Hartford, Conn., which develops Internet-based programs for employer services and human resources providers. □

MOREONLINE

●Computerworld's research links to NDS for NT articles and white papers can be found at www.computerworld.com/links. See the "Novell Directory Services and NT" page.



The data warehouse partners you choose could have a profound effect on your career.



Big companies put little faith in VPNs

▸ *Reliability and security are major concerns*

By Bob Wallace

DESPITE A STRONG push by vendors, some large users have rejected the idea of sending data over the Internet as part of virtual private networks (VPN).

Users said the Internet is still too unreliable, and the shared public network can't be made secure enough to carry mission-critical data. As a result, companies are sticking with their private-line and frame relay networks.

That's the case at MasterCard International Inc., which decided against an Internet VPN in favor of a global frame-relay network when it began to replace its worldwide network last year.

"We thought about VPNs, but we needed guaranteed performance for transaction processing, and the Internet can't provide that," said Rod Thomhill, vice president of network services at the St. Louis-based credit card giant. "If it could, we'd have gone with a VPN." MasterCard expects the frame relay network to halve transaction processing times.

VPN ANGST

Percentage of time that service is unsatisfactory

Frame relay	Less than 7%
Private lines	Less than 5%
Voice circuits	Less than 2%

Base: 267 users at large U.S. companies

Source: [illegible]

Although a fast-growing list of vendors has announced VPN products lately, with many more due by the Networld Interop 98 show next month, users continue to be concerned about Internet reliability and security.

"The reliability of the Internet does not meet our needs," said Alan Robson, director of network systems at coupon giant Val-Pak Direct Marketing Systems Inc. in Largo, Fla. "We have remote users accessing mission-critical SAP applications for time-sensitive data. They need the quickest response times. There's no guarantees with the Internet."

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"Internet service can fall apart at any time and without warning," said Chuck Rush, global network architect at McDonald's Corp. in Oakbrook Terrace, Ill. "We won't look at VPNs until such time when the Internet becomes a reliable means for transporting data."

The fast-food company uses frame relay.

There are technologies that let Internet service providers deliver consistent levels of service, but none is deployed widely, according to Tom Nolle, president of CIMI Corp., a Voorhees, N.J., research and consulting firm.

Respondents to a CIMI survey of 26 large U.S. companies said 93% of the applications they would consider running on VPNs require a consistent quality of service.

Security is another key concern, despite the fact that nearly every VPN vendor offers it.

The CIMI survey showed that 80% of respondents said they believe there is no strategy for security over the Internet that will provide a satisfactory level of risk.

NO ROOM FOR RISK

"With new technologies, early users take risks, and a major security problem arises — one that isn't fixed for a year or so," said Sheryl Olgum, network manager at defense contractor Harris Corp. in Melbourne, Fla. "We exchange sensitive data with our government customers and can't afford a security breach. We can't be certain that VPNs are secure." Harris uses a secure private-line network.

"It's imperative that we keep sensitive data hidden from prying eyes," said Virgil Palmer, director of telecommunications and networks at Air Products & Chemicals Corp. in Allentown, Pa. "Security of VPNs is a big concern." Air Products uses frame relay and private lines.

"We found that there wasn't a specific set of objections to Internet security," Nolle said. "It's more that users simply aren't comfortable with it. The only solution to the problem is time." □

MOREONLINE

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Token Ring left in Ethernet's dust

▸ *Survey shows many plan to phase out technology despite higher speeds*

By Bob Wallace

A CROSS-SECT OF industry heavyweights will gather at next month's Networld Interop 98 show to demonstrate high-speed Token Ring technology.

The question is: Does anybody care anymore?

Certainly not the masses, if a survey of 200 Token Ring users by analysts at International Data Corp. in Framingham, Mass., is any indication.

First introduced in the mid-1980s, Token Ring LANs let many users share either 4M bit/sec. or 16M bit/sec. of bandwidth. The LAN technology took root quickly because it was heavily backed by IBM. But shared Token Ring's speed hasn't increased, and the development of Ethernet switching — which provides much faster "personal" bandwidth — has outstripped it.

So it is no surprise that about half the survey respondents said higher-speed Token Ring would have no effect on their buying plans (see chart at right).

And more than 60% said they are phasing out Token Ring as their backbone network in favor of Ethernet, Asynchronous Transfer Mode or Fiber Distributed Data Interface.

Users say they are moving to Ethernet technologies because they are cheaper than Token Ring, provide a popular migration path to higher speeds and have been the primary development focus of most networking vendors since the early 1990s.

Most vendors "seem to have accepted the fact that Token Ring is dead and that Ethernet won the battle," said John Bonkowski, network research and development manager at United Parcel Service of America Inc. in Mahwah, N.J.

UPS has tens of thousands of Token Ring nodes in roughly 1,400 U.S. offices.

But the shipping giant decided to install Ethernet in all its new offices.

ETHERNET ADVANCE

"We started to realize that Token Ring was not proliferating, and that Ethernet was taking over. Eventually, we'll be mostly Ethernet through attrition," Bonkowski said, "but we'll still have some Token Ring 10 years from now."

In hopes of breathing life into the 16M bit/sec. Token Ring technology, a group of vendors, including IBM, formed the High-Speed Token Ring Alliance last September. They began work on a standard for running Token Ring at 100M bit/sec., which could be ready by year's end.

"It's too little, too late," said Dennis Mitchell, vice president of trading services at Bank of America, Inc., in Concord, Calif., who handles networking for the company's trading floors worldwide. "All our future purchases will be Ethernet."

Even so, not everyone has written off Token Ring. One user expressed interest in 100M bit/sec. Token Ring.

"I see it as a step forward for Token Ring users because it will provide them a migration path to a higher speed," said David Paul McGhee, manager of network support at retailer Dillards, Inc., in Little Rock, Ark., which has roughly 1,500 nodes of Token Ring at its far-flung sites. Whether the company uses high-speed Token Ring "depends on when it's available and what it can do," he said. □

NOT SO HOT

"What networking technologies once seemed hot but aren't anymore?

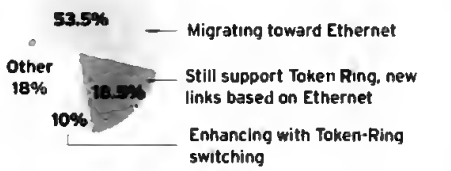
ATM	19%
Novell NetWare	14%
Token Ring	11%
FDDI	8%
ISDN	6%

Base: 105 users, multiple responses allowed

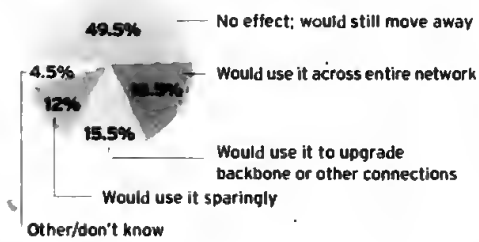
Source: Computerworld Information Management Group, Framingham, Mass.

MOVING AWAY FROM TOKEN RING

Current Token-Ring strategy for desktops and servers



How a 100M bit/sec. or higher version of Token Ring would impact strategy



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So it is no surprise that about half the survey respondents said higher-speed Token Ring would have no effect on their buying plans (see chart at right).

And more than 60% said they are phasing out Token Ring as their backbone network in favor of Ethernet, Asynchronous Transfer Mode or Fiber Distributed Data Interface.

Users say they are moving to Ethernet technologies because they are cheaper than Token Ring, provide a popular migration path to higher speeds and have been the primary development focus of most networking vendors since the early 1990s.

Most vendors "seem to have accepted the fact that Token Ring is dead and that Ethernet won the battle," said John Bonkowski, network research and development manager at United Parcel Service of America, Inc. in Mahwah, N.J.

UPS has tens of thousands of Token Ring nodes in roughly 1,400 U.S. offices.

But the shipping giant decided to install Ethernet in all its new offices.

ETHERNET ADVANCE

"We started to realize that Token Ring was not proliferating, and that Ethernet was taking over. Eventually we'll be mostly Ethernet through attrition," Bonkowski said, "but we'll still have some Token Ring 10 years from now."

In hopes of breathing life into the 16M bit/sec. Token Ring technology, a group of vendors, including IBM, formed the High-Speed Token Ring Alliance last September. They began work on a standard for running Token Ring at 100M bit/sec., which could be ready by year's end.

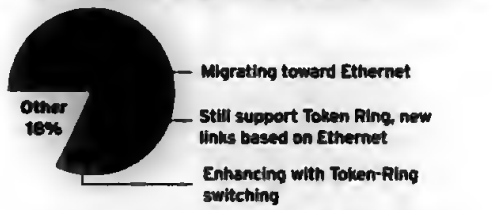
"It's too little, too late," said Dennis Mitchell, vice president of trading services at Bank of America, Inc. in Concord, Calif., who handles networking for the company's trading floors worldwide. "All our future purchases will be Ethernet."

Even so, not everyone has written off Token Ring. One user expressed interest in 100M bit/sec. Token Ring.

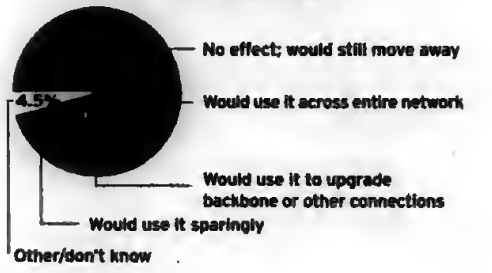
"I see it as a step forward for Token Ring users because it will provide them a migration path to a higher speed," said David Paul McGhee, manager of network support at retailer Dillards, Inc., in Little Rock, Ark., which has roughly 1,500 nodes of Token Ring at its far-flung sites. Whether the company uses high-speed Token Ring "depends on when it's available and what it can do," he said. □

MOVING AWAY FROM TOKEN RING

Current Token-Ring strategy for desktops and servers


Migrating toward Ethernet
Other 18%
Still support Token Ring, new links based on Ethernet
Enhancing with Token-Ring switching

How a 100M bit/sec. or higher version of Token Ring would impact strategy


No effect; would still move away
4.5%
Would use it across entire network
Would use it to upgrade backbone or other connections
Would use it sparingly
Other/don't know

Base: 200 Token-Ring users

Source: International Data Corp., Framingham, Mass.

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Groupware app an instant hit

By Barb Cole-Gomolski

WHEN ACCOUNTING giants Coopers & Lybrand LLP and Price Waterhouse LLP selected groupware to build a joint World Wide Web site, they passed over the Lotus Notes platform that is so well entrenched at their respective sites.

Instead, they chose a Web-based offering from a little-known company.

"We all have Notes, but it is set up differently [at the two firms]," said David Cadoff, project manager for the merging companies' Web site. The deadline for the site is July, so integrating the companies' Notes systems or developing a new application would take too long, he said.

Cadoff is one of many information systems managers who are turning to a new breed of application called instant groupware to get collaborative projects done fast. Users like the swift rollouts and low training requirements those typically Web-based products offer.

NO TRAINING

The software Cadoff selected — ERoom from Instinctive Technology, Inc. in Cambridge, Mass. — runs on Microsoft Corp.'s Internet Information Server and can be accessed from a Web browser. "It was easy to set up, and I haven't had to train anybody," Cadoff said.

About 50 geographically disbursed employees at the Coopers/Price team and a design agency are using ERoom to create the Web site. They can access and decide on changes made to the site by other users. Cadoff estimated that he has reduced design time by about 75% using the software.

Users also praised instant groupware products because they help avoid the lengthy approval process associated with new applications.

That was what drew Russ Wood, director of marketing programs at Bank of America in San Francisco, to an instant groupware application from UpShot Corp. in Redwood City, Calif.

"In a big company, the approval process [for new applications] can be awesome," said Wood, who heads up the division responsible for the bank's Web site. "With this application, I was able to avoid the traditional channels."

Tom Austin, a vice president at Gartner Group, Inc. in Stamford, Conn., said intranet-based groupware products such as ERoom will be adopted by many companies because they are simple. "A substantial portion of [those companies] will also have other groupware-ready technologies like Notes and Microsoft Exchange," Austin said.

That could be a challenge because some users faulted instant groupware for spotty integration with mainstream groupware and messaging systems. Other users were surprised by how much customization prewritten applications required.

"It's taken a lot of customization to make it specific to our organization," said Peter Hutchins, manager of network competitive planning at Nortel, Inc. in Ottawa. About 150 users in Nortel's public network division use Involv from Changepoint International Corp., a subsidiary of Richmond Hill, Ontario-based Changepoint Corp., to manage a Web site and host collaborative applications.

Using Involv was still more efficient than developing the applications from scratch, Hutchins said. □

Corrections

Because of a reporter's error, a March 16 story mischaracterized Florsheim Group, Inc.'s planned $10 million systems overhaul.

Along with manufacturing, the project will include order fulfillment, financials and retail information systems.

In addition, SAP AG didn't pay for the airline flights taken by two Florsheim employees who attended a user conference.

A March 23 story misidentified the World Wide Web address for Morgan Network Software Corp. It is *www.morgansw.com*.

Users want a look at Baan V

▸ *System delay leaves upgrade plans on hold*

By Randy Weston

USERS ARE DEMANDING that The Baan Co. take the wrapper off its much-hyped Baan V component-based application package, also known as BaanSeries, and give them a hands-on look at the software system at this week's BaanWorld user group conference.

"People really want to see what's new," said Jane Green, president of the independent Baan World Users Group. "We have heard a lot about BaanSeries, but we have not seen it at any event yet."

The Dutch vendor's conference starts tomorrow in Denver. Baan plans to give users the desired hands-on access to Baan V, which is due for general delivery by year's end.

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EASIER UPGRADES

Much of the hype has centered on the package's new component architecture. Baan, with U.S. headquarters in Reston, Va., is breaking up the integrated applications suite into individual pieces so users can upgrade or add individual components without upgrading the entire package.

But Baan's reluctance during the past year to share details about the new system has frustrated some users who have stalled upgrade plans while awaiting news.

For example, A-dec, Inc., a Newberg, Ore.-based dental equipment maker, delayed its Baan III upgrade.

"We talked about going to Baan IV last fall, but we held off because Baan said [Baan] V is just around the corner," said Keith Bearden, information services manager at A-dec.

"We are still in a holding pattern. We're running into performance problems on [Baan] III that are killing us. We haven't been able to successfully purge and archive data," Bearden said.

Users want details on the following:

- New functionality and enhancements.
- Architectural and infrastructure needs.
- New upgrade tools.
- Consulting and services available for the upgrade.
- Baan's long-range plans for integrating into BaanSeries the third-party applications it has purchased.

Joshua Greenbaum, an analyst at Hurwitz Group, Inc. in Framingham, Mass., said Baan has been reserved because it took on a lot the past year, including several acquisitions and the revamping of its product architecture.

WEIGHING RISKS

Baan officials "are willing to risk having some angry users who are angry about anticipation rather than angry about a flawed product," Greenbaum said. "But they really do need to pony up to very exciting technology. It's time."

Security device maker Sensormatic Electronic Corp. in Boca Raton, Fla., is upgrading from Baan III to Baan IV.

Dennis Torrell, the company's vice president of MIS, said he wished Baan had delivered a component approach earlier. That way, Torrell said, he simply could have added new Baan IV components, such as the distribution module, to his Baan III system rather than being forced to upgrade everything.

Sensormatic's Dennis Torrell says he doesn't want to be the first out of the gate to upgrade to Baan V

Torrell said that once he has Baan IV installed, he would prefer to simply add Baan V functionality such as a new customer-service module rather than do another full upgrade.

Although Baan has said Baan IV users will be able to add Baan V components rather than upgrade everything to Baan V, Torrell said that without knowing what that entails, he can't make any plans.

But Torrell also said he isn't willing to be first out of the gate. He said Sensormatic's plans are to start upgrading to Baan V at the end of next year.

"I want to give them a year's worth of trial before I adopt it," he said. "I don't know the quality. I don't want to be first." □

Aurum's front-office application

Aurum Software Corp. this week will showcase World Wide Web-based front-office technology that rivals are racing to bring to users.

"What they're doing is without a doubt a trend throughout the industry," said Barton Goldenberg, president of Information Systems Management, Inc., a Bethesda, Md., consultancy. But that trend is limited to companies that already automate their sales process — an estimated 50% of the Fortune 500. The rest are sticking to contact-management software.

Companies moving to Web-based systems are doing so because the systems are easier to use, are cheaper to install, can be used companywide and provide less training throughout the company, Goldenberg said.

At BaanWorld in Denver this week, Baan subsidiary Aurum will demonstrate Web-enabled sales, call-center and configuration applications designed to work with Microsoft Corp.'s Internet Explorer browser. The applications were designed to integrate with Microsoft Office and connect more easily to back-end financial systems, including those from Baan, Oracle Corp. and SAP AG. The sales component is due to ship this week; the rest will ship later this year.

Analysts said companies should be aware that browser-based applications differ from Web interfaces [illegible] client/server applications. Web interfaces are [illegible] designed and typically require complete [illegible] browser-based [illegible] platform. Of the [illegible] said he expects [illegible] Inc., and [illegible] are [illegible] selling [illegible] plan [illegible]

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Users look to CA for software integration

▸ *Many don't want hassle that third-party tools can bring*

By Patrick Dryden

COMPUTER ASSOCIATES International, Inc. will showcase more third-party vendor support for Unicenter TNG than ever before at its annual user conference next week.

But some users aren't very impressed. They chose CA's suite of software for monitoring networks, systems and applications, instead of rival enterprise management frameworks, so they wouldn't have the headaches of integrating and supporting tools from multiple vendors.

Those users expect more help from CA than from the boatload of partners that will exhibit at CA-World '98 in New Orleans.

"At the present time, they are irrelevant to us," said Tom Hunter, director of information systems operations at Charleston Area Medical Center in Charleston, W. Va.

"We prefer a single source for software and support because we've never been able to implement point solutions well," Hunter said.

The state's largest health care provider is trying to manage 70 servers and 1,600 desktops.

www.caworld.com

Right now, J. P. Morgan & Co. is trying to roll out Unicenter TNG to replace most of the 150 homegrown and packaged tools in its tool chest, said Bill Oris, an IS vice president at the financial services provider in New York.

"It's nice to have choices because one company can't supply all our needs to manage systems," Oris said.

For example, service-level monitors that work with Unicenter TNG are on a future wish list. However, "we're not there yet," he said.

Third-party vendors help Allegiance Healthcare Corp. fill the 20% of its management software needs that aren't covered by CA, said Tony Navarro, manager of systems management at the medical supplies distributor in McGaw Park, Ill.

"For the most part, Unicenter TNG and CA's options for it provide the functionality we want," Navarro said.

> "We prefer a single source to software and support because we've never been able to implement point solutions well."
> — Tom Hunter
> Charleston Area Medical Center

He also said CA's engineers and partners already saved Allegiance the work of integrating four vital tools: a server manager from Compaq Computer Corp. and network managers from Bay Networks, Inc., Cisco Systems, Inc. and Netscout Systems, Inc.

Users are mindful that today's partners can turn into competitors tomorrow, which could benefit all Unicenter TNG users. So greater third-party support "should keep CA on its toes to serve us better," said one chief information officer, who asked to remain anonymous.

The need for third-party tools and service is all "a matter of personal taste and timing," said Marc Sokol, senior vice president of advanced technology at CA in Islandia, N.Y.

Of course, CA prefers that customers monitor all aspects of the enterprise through Unicenter TNG, Sokol said, "but we recognize we can't be all things to all people." □

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FRANKLY SPEAKING

Avoiding disasters

FRANK HAYES

AT STANFORD UNIVERSITY'S Graduate School of Business, they are still picking up the pieces from the most avoidable IT disaster of the year.

Early last month, technicians upgrading one of the school's network servers wiped out the contents of the server's disk drive. The technicians assumed the drive was backed up, but the backup turned out to be incomplete. The result: Files that belonged to faculty and doctoral students — in some cases representing years of research — were blown away.

It's small potatoes as disasters go — 11 or 15 of the server's 200 users could not recover their work. But for those users, it's a catastrophe. Research notes, databases, analyses, dissertation drafts — all gone in one operational snafu.

Worst of all, it didn't have to happen. Stanford had the right policies: Data was supposed to be backed up daily, users were encouraged to back up their own data independently, and the contractors doing the disk-drive upgrade were supposed to back up the data, too.

But those policies were only loosely enforced. The result: a nightmare for the users whose files were lost and a very public black eye for an institution that prides itself on its high-tech savvy.

There's nothing exciting about the grunt work of keeping systems running.

Could the same thing happen to your company — except with sales analyses or departmental data vaporized instead of someone's schoolwork? Probably. In fact, many IS shops have set themselves up for exactly that kind of failure — and IS managers have only themselves to blame for it.

After all, backups and other routine operations are the dowdiest work in IS. There's nothing sexy, exciting or high-profile about the grunt work of keeping systems running.

Trouble is, for many IS staffers "low profile" translates to "not important."

Of course, there are good, practical reasons for keeping routine operations low profile.

CEOs and other executives love hearing about projects that will increase profits and competitiveness. They like to be dazzled by hot new technology and blown away by fancy new systems. They don't want to hear about routine operations with no sizzle, no dazzle and no return on investment.

But even if they're almost invisible to the outside world, routine operations need to be made a high priority inside your IS shop. The following are some steps to take:

- **Eliminate single points of failure.** Make sure at least two staffers are responsible for every routine procedure. Both staffers don't have to perform every backup, test and report, but both should be responsible for making sure the procedures happen on schedule.
- **Log everything.** That raises the likelihood things will get done. Then make sure staffers regularly comb the logs for recurring problems and other patterns — early-warning signs of future catastrophes.
- **Spot check.** Check the logs. Check the labels on backups. Check that networks are being monitored. You don't need daily white-glove inspections — just enough (and just often enough) to make sure things don't fall between the cracks. And don't delegate this job. Doing it yourself sends the message that routine operations really do matter.
- **Plan for disaster** with your staffers. Someday the Curse of Stanford will hit your shop. How will you recover as much data as possible? How will you explain it to users and your boss? How much will losing that information cost in business terms?

You may not have those answers now, but you'd better nail them down before some utterly avoidable foul-up has you picking up the pieces, too. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

SHORTS

U.S.: IT a major boon

The U.S. Department of Commerce last week released a 300-page report gushing over the economic impact of information technology. The study said the IT industry is growing twice as fast as the overall U.S. economy, while plummeting IT product prices have reduced inflation. It also documented the boom in electronic commerce, citing Internet success stories such as Amazon.com, Inc. The report also cited a shortage of skilled workers as a threat to the industry. The report failed to address whether IT really makes companies — and the nation — more competitive.

Celeron chip debuts

Intel Corp. in Santa Clara, Calif., last week released its first Celeron chip, which was designed for computers in the sub-$1,000 range. The chip, code-named Covington, is available now. The next chip release based on Celeron is scheduled for June.

Encryption implementation fails

U.S. Commerce Secretary William M. Daley last week said in a speech to software executives that the Clinton administration has failed to bring about agreement between law enforcement and the technology industry over encryption policy. "The truth is that while our policy goal — balance — is the right one, our implementation has been a failure," he said. The government is retarding growth of domestic encryption products while encouraging such growth abroad, he said.

E-commerce arrives in China

IBM has teamed with China Telecom to offer the first available international electronic-commerce services in China. IBM's managed network services are available to Chinese companies through China Telecom. The services let Chinese companies link local offices to offices worldwide. Traveling workers also can access network-based services in China with a local or domestic call.

Bay's profits miss mark

Bay Networks, Inc. last week said its third-quarter financial performance was behind last month's revised estimates. The Santa Clara, Calif., networking vendor reported a net income of $9.9 million, or 4 cents per share, compared with a net income of $20.7 million, or 10 cents per share, for the same quarter a year ago. Analysts had expected Bay to post net income of 12 cents per share.

Baan shuffles senior execs

Just ahead of this week's BaanWorld conference in Denver, The Baan Co. shuffled two of its top executives. Tom Tinsley, who was president and chief operating officer, was named chairman and is moving from The Netherlands to Baan's new U.S. headquarters in Reston, Va. Klaas Wagenaar, Baan's chief financial officer, is taking over Tinsley's day-to-day operating duties.

SEC proposes 'net trade rules

Faced with an increasing number of stock trades made over the Internet, the U.S. Securities and Exchange Commission (SEC) last week voted to release for public comment proposals for new rules governing alternative trading systems. Under the proposed rules, companies running new broker-dealer systems and achieving high transaction volumes would have to link to registered exchanges and publicly display all orders, thus allowing members of the traditional exchanges to execute the orders.

Apple posts $55M profit

Buoyed by sales of Power Macintosh G3 systems, Apple Computer, Inc. in Cupertino, Calif., last week posted its first consecutive quarterly profit since 1995. The company reported a $55 million profit for the quarter, compared with a $708 million loss in the same period a year ago. But quarterly revenue dropped from $1.6 million to $1.4 million.

Oracle ships AppBuilder for Java

Oracle Corp. last week shipped a promised Java development tool based on technology licensed from Borland International, Inc. in Scotts Valley, Calif. Oracle is bundling AppBuilder for Java 1.0 in a package called JDeveloper Suite that costs $2,995 and also includes an Oracle8 database license and Oracle Application Server software. Oracle, in Redwood Shore, Calif., also reiterated longstanding plans to build Java support in to both Oracle8 and the Oracle Application Server by year's end.

SHORT TAKES **Netscape Communications Corp.'s** stock on Thursday jumped 29% to $25.56 as rumors of a buyout by Sun Microsystems, Inc. resurfaced. . . . **Hewlett-Packard Co.** last week slashed prices by up to 20% on its OmniBook line of notebook PCs. . . . Vienna, Va.-based **MicroStrategy, Inc.**, a maker of data analysis software, filed a registration statement for an initial public offering with the **SEC.** . . . Mergers among staffing and IT service firms, fueled by the shortage of skilled information technology workers, hit an all-time high in the past three months, according to **De Bellas & Co.** in Houston. From January to March, 123 deals were made — a 50% jump from the same period last year. That compares with a total of 385 merger deals in 1997.

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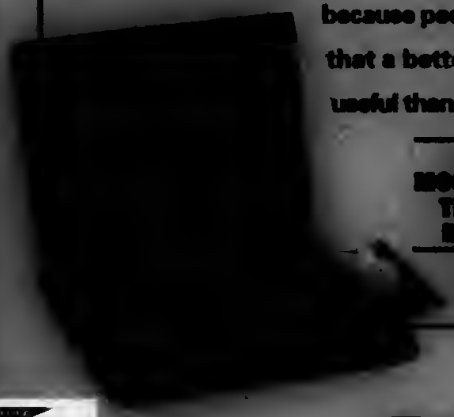

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MICRO

Tardy Y2K strategy irks users

▸ *Microsoft finally swats at year 2000 bugs; users may pay in upgrades*

By Sharon Gaudin

MICROSOFT CORP.'s late showing in the year 2000 arena may cost some corporate users the price of yet another upgrade.

The Redmond, Wash., software vendor last week unveiled its long-awaited year 2000 strategy, which was less a real strategy for its users and more an overview of the state of its products. The information was designed to help users evaluate the extent of their year 2000 problem.

Alden Buick's Paul Soares

But some users and analysts said the industry giant is late to the party and underdressed, leaving users no new tools and little time to fix newfound problems. That means it may be faster for them to install an upgrade of some of their software than fix the problems they may find lurking inside.

"Here we go again," said Michael Kearney, vice president of information technology engineering at Phoenix Home Life Mutual Insurance Co. in Enfield, Conn. "We just went through a whole Windows 95 upgrade. We weren't going to do Windows 98, but to be fully year 2000-compliant, we may have to look at that harder."

In rating the compliancy level of about 50 of its 8,500 products, Microsoft noted that Windows NT and Windows 95 have some year 2000 problems. Though not bad enough to take down the operating system, those glitches may garble the output of some information or freeze up some files, which keeps the products from being fully compliant.

Some patches are on the way. Jason Matusow, Microsoft's year 2000 strategy manager, said the as-yet-unshipped Windows 98 and Windows NT 5.0 are expected to be fully compliant when they hit the streets.

Microsoft has confirmed a June 25 ship date for Windows 98, but Windows NT 5.0 isn't expected until next year.

Analysts said Microsoft is dangling in front of users the promise of year 2000-clean versions of its big products, playing on their two-digit fears to get them to upgrade.

Industry watchers said the idea of having unfixed millennium bugs may just be enough to get users to dig into their pockets. "If you're saying it could possibly affect the operation of the desktop or the accuracy of the server, that makes me nervous," Kearney said. "That forces our hand to do another upgrade when maybe what we were trying to do was hold on to [Windows] 95 for a while [to get our money's worth]." It took him more than a year to upgrade from Windows 3.1 to Windows 95.

Still, Microsoft's timing may end up being more of a problem for Microsoft than for some of its biggest customers, according to Paul Soares, general manager and senior vice president of Alden Buick Pontiac GMC in Fairhaven, Mass., and a member of the GM Access Council, which oversees the company's computer connections with all of its dealers.

"Nobody should be starting to think about year 2000 now," he said. "If there's any problems with Win 95 or Windows NT, you can damn well bet we're going to be putting some pressure on them."

Rob Enderle, an analyst at Giga Information Group in Cambridge, Mass., said Microsoft made its stand well after many companies had already hit a crisis point.

"In many, many cases, you're talking about thousands of desktops and servers and Internet servers and applications," he said. "This will require migrations that haven't been planned. There isn't enough time anymore, and there's a huge shortage of technical people to help companies get this work done. Now it's going to be far more expensive, a far higher risk of mistakes and a far higher risk of not being completed in time." □

Senior editor Kim S. Nash contributed to this story.

MOREONLINE

@Computerworld's research links to resources, compliance, patches and other year 2000 information related to servers and operating systems can be found at: *www.computerworld.com/links* under "Y2K and server and desktop operating systems."

Millennium scorecard

Microsoft last week unveiled its long-awaited Web site (*www.microsoft.com/year2000*) focused on the year 2000.

Originally expected in mid-March, the site offers a product guide and compatibility rating of its Windows, Visual Studio, Office and BackOffice products. It also offers product patches, how-to tips and a list of third-party tools and utilities.

The rating guide shows that most of Microsoft's products fully comply or mostly comply with some issues. Microsoft's World Wide Web browser Internet Explorer 3.0 has issues that are scheduled to be fixed this quarter. Word 5.0 for DOS, Access 2.0 and Office 4.x Professional won't be made compliant. Windows NT 4.0 and Windows 95 are listed as compliant with issues.

Jason Matusow, Microsoft's year 2000 strategy manager, said Windows 98 and Windows NT 5.0 should be fully compliant when they ship. He said Microsoft hasn't finished testing Windows 3.1, but so far it doesn't look good. Microsoft will release a set of patches for home users, but not for the few remaining corporate users, he said.

A survey by International Data Corp. notes that a year ago there were about 94,000 versions of Windows 3.1 in corporate settings. This year it is down to nearly 33,000. — Sharon Gaudin

Pulitzer-winning *Herald* IT staffers: (back row, left to right) Jim Gaasterland, Dewey Kvidt, Mark Young, Terry Ovebo; (front row, left to right) Jackie Sannes, Betty Wilkening

Unsung heroes: IS staff rescues flooded newspaper

CONTINUED FROM PAGE 1

porters' copy was transmitted electronically to *Herald* editors who had flown to Minnesota. There, they worked on an editing system at *The St. Paul Pioneer Press*, a sister publication in the Miami-based Knight-Ridder, Inc. newspaper chain.

But after 24 hours, the university was flooded. So *Herald* staffers headed north to Manvel Elementary School, occupying the library and art and band rooms. The IS team set up writers on the school's rudimentary Macintosh systems to transmit stories via modem to St. Paul.

Meanwhile, the IS team began rebuilding the newspaper's computerized photo processing system and electronic imagesetter in two rented construction trailers set up in the school's gravel parking lot.

Kvidt also decided to relocate to Manvel the paper's circulation, finance and other business systems, which were running on a Hewlett-Packard Co. HP 3000 in Mark Young's garage. Young is the *Herald*'s manager of technical services. His father, brothers and uncles, all co-owners of an auto salvage yard in Devil's Lake, N.D., helped the IS team by rigging up a 240V back-up electrical generator from used auto parts.

"We basically rebuilt the whole of the *Herald* in Manvel, except for our classified [advertising] system," Kvidt said. To process ads, the *Herald* used a system at another sister paper in Boulder, Colo.

Printing the *Herald* on presses in St. Paul and airlifting 120,000 copies to Grand Forks for free distribution was getting costly. So once the photo system and image-setter were up and running at Manvel, the *Herald* relocated printing closer to home, producing one section at a press 40 miles to the north in Grafton, N.D., and the other section at a press 80 miles to the south in Fargo, N.D.

"It was a lifesaver. It just made us feel better to see the paper and that something was still stable here. It gave people a lot of hope."

– Grand Forks resident Carole Hagness

That is where the spouses, kids and bingo palace come in.

"We leased a bingo palace in Grand Forks that wasn't flooded, and an army of kids, including the IS director's, would come in early to insert [sections of the] papers together, then go to the distribution points," Kvidt said.

A year later, Grand Forks resident Carole Hagness recalled how it felt to see the paper in those first days after the floods and fires. "It was a lifesaver. It just made us feel better to see the paper and that something was still stable here," Hagness said. "It gave people a lot of hope." □

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SEQUEN
TANDEM

Bruce Claflin will stay in Massachusetts

DEC's No. 2 exec won't go with Compaq

By Jaikumar Vijayan

WORD LAST WEEK that Digital Equipment Corp.'s No. 2 executive plans to leave down the road caused some observers to question whether Compaq Computer Corp. can retain Digital's brightest under a merged company.

Bruce Claflin, head of Digital's worldwide sales and marketing organization, said he wouldn't relocate his family to live near Compaq's Houston headquarters. Claflin, who had discussed a high-level post-merger role with Compaq, said in an interview that he would remain at Digital until the merger is complete.

Claflin, the former general manager at IBM PC Co., joined Digital in 1995 and was put in charge of turning around the company's sagging PC operations.

Early on, he removed Digital from the consumer PC market to focus on business users. He is credited with stemming the unit's losses.

The news dampened an otherwise upbeat week for Digital. The Maynard, Mass., company reported a profit of $307 million on revenue of $3.2 billion for the quarter ended March 28. The earnings, up from $51 million in the same period last year, reflected the $200 million Digital netted for the sale of its network business to Cabletron Systems, Inc.

For Compaq, whose $9.6 billion acquisition still must be approved, Claflin's departure could be a sign of things to come among the rank and file, observers said.

Fears of layoffs as well as plant and product consolidations by a post merger Compaq have created an atmosphere of fear and uncertainty among Digital employees, according to Terry Shannon, editor of "Shannon knows DEC" in Ashland, Mass.□

Banks in sync on security

▸ *NationsBank, BankAmerica share product*

By Laura DiDio

A HIDDEN DIVIDEND in the merger of NationsBank Corp. and BankAmerica Corp. is that both companies use the same security product for their electronic-commerce transactions.

The fact that both financial institutions use VeriSign, Inc.'s E-Commerce Solution will help the merger proceed more smoothly and ensure that there is no lapse in privacy and security for bank customers, bank executives and analysts said.

VeriSign, in Mountain View, Calif., is one of the top two vendors of digital certification services for secure Internet and electronic-commerce applications. The software supports the Secure Electronic Transaction protocol for World Wide Web-based transactions.

NationsBank and BankAmerica use VeriSign's certificates for applications such as employee intranets and online corporate and home banking customers, a VeriSign official said.

"The fact that both banks are using VeriSign for certificate authority is a big plus from a technical standpoint," said Mitch Hadley, senior vice president in the strategic technology group at NationsBank headquarters in Charlotte, N.C.

"We'll still have issues to work out, such as integrating the two route certificates, but the underlying platform is the same. So no one has to learn a new technology, and it will be transparent to the end user employees and banks' customers," Hadley said.

In a merger of this size and scope, financial institutions could "potentially run into problems if either bank was deploying a proprietary solution," said John Pescatore, an analyst at Trusted Information Systems, Inc., a Rockville, Md., consultancy.

"In this instance, though, the usage of VeriSign in both places means a minimum amount of disruption for all concerned," Pescatore said.□

MORE ONLINE

Computerworld's research links to papers, articles, tutorials and standards for digital signatures on the Web can be found at www.computerworld.com/links under "Digital signatures."

Year 2000 fix holds up bank merger payoff

CONTINUED FROM PAGE 1

which is approximately when all four banks expect to complete their respective year 2000 conversion efforts.

Lessons learned

In its 1996 merger with The Chase Manhattan Bank, Chemical Banking Corp. opted to select suites of systems from business units and functional areas of each bank rather than cherry-pick individual software applications for the combined bank.

Chemical had learned the hard way from its 1991 merger with Manufacturers Hanover Corp. In that deal, the banks took nine months just to pick 400 to 500 of the top applications out of a field of 1,000 programs used by the two banks, said Rich Mangogna, executive vice president and global bank CIO at Chase.

When Chase and Chemical merged, they collected their applications in three months and converted to the new platforms in six months. That approach "allowed us to reach our [cost savings] goals faster," said Mangogna, who chaired the merger planning committees for both mergers.

— Thomas Hoffman

Chase CIO Rich Mangogna: Merging banks spent months picking hundreds of top applications

But "there will be very little systems integration done" between the respective partners before mid-2000 because of the massive resource constraints all banks are facing with industry labor shortages, millennium test requirements and other ongoing projects, said Austin Adams, executive vice president of the automation group at First Union Corp. in Charlotte, N.C.

Adams should know. He has orchestrated systems consolidations for 70 banks First Union has acquired over the past 13 years, including Philadelphia-based CoreStates Financial Corp. Regulators approved that acquisition last week.

As a result, those constraints will delay a good chunk of the $1.3 billion and $930 million in cost savings that the new BankAmerica and Banc One expect to generate, respectively.

Adams and other bank CIOs who have survived past marriages offer the following advice to those at the altar:

- Go through the hiring and systems selection process as fast as possible. "People would rather hear bad news than no news," Adams said.
- Identify and announce the key decision-makers within two weeks of the merger announcement.
- Decide on project management disciplines as quickly as possible.
- Move forward with a sense of urgency. Make choices, not compromises.

It's unrealistic to try to merge systems and convert date-sensitive code at the same time, a First Chicago spokesman said.

Although a delayed systems selection/implementation approach may appear to be a more prudent course of action than trying to pull off the double whammy of consolidating systems *and* converting year 2000 projects en masse, at least one critic said it could be a colossal mistake.

Delaying systems integration between merging banks "is a fool's game," said Joe Boivin, former year 2000 project manager at Canadian Imperial Bank of Commerce in Toronto. That's because every time two companies merge business units, it creates "change" in the IT department "and those changes will disrupt year 2000 activities" and cause millennium deadlines to slip, added Boivin, who is now director of The Global Millennium Foundation, the national program office for Canada's year 2000 issues in Ottawa.

DEADLINE LOOMS

Even though each of the banks will spend hundreds of millions of dollars to repair date-sensitive systems that will be scrapped once they are folded into the dominant bank architecture, "it doesn't do their customers any good if the systems don't work" on Jan. 1, 2000, said Bill Burnham, an analyst at Piper Jaffray Cos., an investment bank in Minneapolis.

And although systems consolidation and year 2000 projects are resource-intensive, NationsBank's year 2000 project director Bob Large said NationsBank and BankAmerica have enough systems personnel "that it would not be an issue" to complete year 2000 testing and begin merging systems simultaneously.

Others disagreed. "There's too much overload, too much pressure on IS staffs and too much to digest in too little time," said M. Arthur Gillis, president of Computer Based Solutions, Inc., a Dallas-based banking consultancy and a 29-year industry veteran.

One recommended approach, Boivin said, is to move all of one bank's customers immediately to the other bank's systems. Even though that is a less-disruptive approach, banks are still faced with marrying dissimilar product lines and expanding their systems capacity to support a massive influx of new customers, he acknowledged.

A spokesman for Charlotte, N.C.-based NationsBank said most BankAmerica systems will be rolled into a NationsBank computing model, although he isn't sure when that process will begin.

Early evidence suggests that could require a lot of work. For example, although NationsBank has already standardized its branches on a single retail banking platform, BankAmerica will have to consolidate four disparate retail banking systems into the NationsBank architecture, a BankAmerica spokesman said.□

JavaSoft faces reorganization

CONTINUED FROM PAGE PAGE 1

if JavaSoft is a business unit that will run on its own profits and losses, or a [research and development] group that will help [independent software vendors] and customers get baseline Java products," said Sanjay Sarathy, market development manager at NetDynamics, Inc., a JavaSoft business partner in Menlo Park, Calif. He said he was briefed on the reorganization several weeks ago.

One major change already has happened. Jonathan Schwartz, former CEO of JavaSoft's Lighthouse Design subsidiary and a member of The McKinsey Institute, took over as JavaSoft's director of marketing six weeks ago. Sun's JavaSoft division declined comment.

NO SURPRISE

A reorganization came as no shock to the development community given the mounting evidence of Sun's prickly relationship with several of its licensees and partners. Tension has been mounting over the level of control Sun exerts over the Java standardization and licensing process and the fact that the company increasingly is developing products that put it in competition with those same partners/competitors.

John Schroeder, an executive at Sqribe Technologies, Inc. in Menlo Park, said he is nervous that a reorganization would mean more licensing costs and slower Java software production.

"When they try to turn Java into a money-making organization, will they continue to provide the basic framework of components for their [independent software vendors]?" he asked. "If they're going to be generating revenue, I'd hate to see much of a switch between what's been given to us as part of the [Java Development Kit] and what they're going to pull out and try to make money off of."

IBM said it would support a reorganization given JavaSoft's increasing involvement in product development.

"It makes sense for JavaSoft to clearly define where they're doing products and where they're collaborating on technology development," said Bernard Spang, IBM's business relationship manager of Java software.

Sarathy said the resources Sun spends bolstering its efforts to standardize Java take away from the resources available to build Java-based tools that can bring some money into the company.

"They do want to control it. There's no question. After all, they're in there for their own business," said William Woo, an engineering director at Hewlett-Packard Co.'s Internet division.

Rick Ross, president of the nonprofit Java Lobby, a New York-based organization of Java developers and supporters that reportedly has 16,000 members, said he has seen "significant evidence that there's pressure on JavaSoft to produce revenue," based on conversations he has had with company engineers.

Frustrated with Sun's control of the embedded Java specification, Hewlett-Packard Co. earlier this month elected to announce its own embedded Java implementation. One of the first to sign up for a license was Microsoft Corp., which is being sued by Sun for noncompliance with its Java contract.

At about the same time, several developers were stunned to learn that Sun had quietly added some two-dimensional class libraries to the Java Development Kit 1.2 beta.

Sun made the changes in deference to one of its imaging partners, Eastman Kodak Co., but without putting them through any public commentary process. A small matter on its face, the issue actually was "very serious," Ross said, because Sun has an obligation to honor the trust that it requested and received when the International Standards Organization sanctioned the company to shepherd the Java standardization process.□

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HEWLETT PACKARD

Utilities, telcos seek marketing edge

▸ *Deregulation brings data warehousing apps to forefront*

By Craig Stedman

AS DEREGULATION FORCES onetime monopolies to get serious about marketing, those companies are turning to data warehousing technology for help.

Utilities and telephone companies are rushing to build marketing-oriented data warehouses that hold customer records and demographic information. Their marketing departments will then use analysis and campaign management tools to try to find ways to fend off new rivals and expand into different markets.

For example, Entergy Corp., a $9.6 billion electric utility based in New Orleans, recently announced plans to turn on a data warehouse for its marketing department by year's end. That goes hand in hand with an increase in its marketing head count from 12 people a year ago to 65 now.

Upcoming deregulation is the driving force, said Lark Will, director of direct marketing at Entergy.

"We were a monopoly, but the future is expected to be a competitive one," she said. "We need to get to know people at a household level so we're not flooding them with phone calls they don't want to receive."

Will and other marketing executives said data mining and other warehousing technologies should help them segment customers according to buying habits. That would set the stage for more targeted promotions and for cross-selling multiple products or services to certain customers.

Sean Kathermes

BCTel's Bob Boroski: The company has quadrupled the number of employees who use technology for custom marketing

But marketing people who know how to use analysis tools are a rare breed. Entergy plans to offer extensive training programs, Will said. "There aren't many of us who have an understanding of [the technology]."

Bay State Gas Co., a $475 million utility in Westboro, Mass., is running into the same training hurdles as it installs warehousing technology for its core gas business and for a new unregulated subsidiary that sells various products and services.

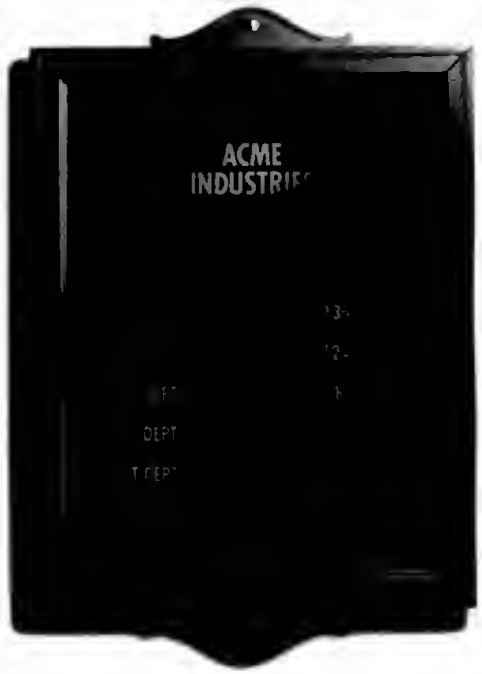
"Some folks have been waiting their whole careers for this kind of opportunity," said Joel Singer, president and co-CEO at Bay State Gas. "But for others, it's a very disturbing change. We see a lot of turnover in marketing."

But there is no turning back. Warehousing and the targeted customer marketing it enables are now "an integral part of the whole business," Singer said. A marketing data mart for the unregulated EnergyUSA unit is due to be in place this fall as the first step in a multimillion-dollar warehousing investment by Bay State Gas, he said.

Some phone companies are plunking down money on warehousing as deregulation spreads from long-distance to local markets.

BCTel, the telephone unit of Vancouver-based British Columbia Telecommunications, Inc., last year built a multiterabyte data warehouse five times bigger than its previous data mart. It also installed campaign management software and began data mining tests.

The new technology helped BCTel develop a long-distance price cut promotion in a matter of weeks and then monitor who took it, said Bob Boroski, manager of database marketing. "We had to target it very carefully, and without a data warehouse, we wouldn't have been able to do that," he said. □



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Digital linear tape format due in 1999

By Nancy Dillon

NO NEW TAPE storage products with more than 35G bytes of capacity have hit the market since Quantum Corp. introduced its DLT 7000 in 1996. But this seemingly stagnant market is about to make some huge leaps forward.

Milpitas, Calif.-based Quantum and a triumvirate comprising IBM, Hewlett-Packard Co. and Seagate Technology, Inc. recently announced a 100G-byte digital linear tape (DLT) format due to the middle of next year.

"More business means more storage. The larger amount of storage you have, the faster and easier you want to save it to tape."
– Robert Ernst, Ridge Pallets

Seagate's Super DLT and the triumvirate's Linear Tape Open (LTO) formats will use half-inch tape and will deliver throughput of 10M byte/sec. The three companies began licensing the LTO specifications at the time of the announcement; Super DLT is proprietary.

Both formats will compete in a midrange tape storage market that Framingham, Mass.-based International Data Corp. (IDC) projects will reach $2.6 billion by 2002. IDC analyst Bob Amatruda said "drives will need to offer at least 100G bytes of native capacity and at least 10M byte/sec. transfer rates to remain competitive into the next century."

Quantum expects Super DLT to reach 500G-byte capacity at some point. IBM, Palo Alto, Calif.-based HP, and Scotts Valley, Calif.-based Seagate expect a version of LTO called Ultrium to reach 800G-byte capacity.

"More business means more storage. The larger amount of storage you have, the faster and easier you want to save it to tape," said Robert Ernst, MIS director at Ridge Pallets, Inc., in Bartow, Fla. The forklift pallet manufacturer is a subsidiary of PalEx, Inc. in Houston.

Ridge Pallets' business tripled in the last year, and the company now requires much more storage.

The SuperDLT drives will work with older DLT tapes, which gives existing DLT customers reason to wait.

"We have more than 5,000 20G-byte DLT tapes right now. Rather than make a sideways upgrade to DLT 7000, we've decided to wait for the 100G-byte products," said Bill Brangan, a computer support specialist at Cornell University's Wilson Laboratory in Ithaca, N.Y.

"The 100G-byte tapes will save us so much more in terms of manpower, human error and cartridge cost reductions."

Brangan said his group goes through five to 10 tapes per day storing physicists' work.

"Just one of our data sets can run us 70 tapes, or 140 tapes counting off-site backup copies. With 100G-byte tapes, 140 would be cut to 28. We'd save about 100 tapes a week," he said.

The LTO format isn't backwards compatible, but it has the advantage of open licensing.

"With IBM, HP, Seagate and possibly others introducing LTO-based products next year, LTO has a chance to be really pervasive," Amatruda said. "Formats that aren't licensed, [such as DLT], are restricted to one manufacturer that might only be able to crank out 200,000 drives per year." □

COMPARING TAPE TECHNOLOGIES

	VENDOR	PRODUCT	CAPACITY*	THROUGHPUT*	AVAILABILITY
8MM TAPE	Exabyte	Mammoth	20G bytes	3M byte/sec.	Now
		Mammoth 2	70G bytes	12M byte/sec.	Mid-1999
	Sony	AIT	25G bytes	3M byte/sec.	Now
		AIT 2	50G bytes	6M byte/sec.	Next year
	HP/IBM/Seagate†	Accelis	25G bytes	10M byte/sec.	Mid-1999
1/2-IN. TAPE	Quantum	DLT 4000	20G bytes	1.5M byte/sec.	Now
		DLT 7000	35G bytes	5M byte/sec.	Now
		Super DLT	100G bytes	10M byte/sec.	Mid-1999
	HP/IBM/Seagate†	Ultrium	100G bytes	10M byte/sec.	Mid-1999

*Uncompressed †LTO technology

Lawson sticks to its own turf

▸ *Software vendor shrinks from ERP, management*

By Craig Stedman
ORLANDO, FLA.

LAWSON SOFTWARE, INC. knows its place — make that its niche — in the world of packaged applications.

At Lawson's user group conference here earlier this month, company officials said they are sticking to business applications such as financials, human resources and procurement.

Following human resources rival PeopleSoft, Inc. into the ranks of full-fledged enterprise resource planning (ERP) vendors isn't in the cards, Lawson said.

SAFE HAVEN

Minneapolis-based Lawson also is keeping its vertical market focus on retail and health care, two industries that don't have much call for the manufacturing software it lacks.

For some users, Lawson's offerings meet all their business processing needs.

For example, Union Camp Corp. in Wayne, N.J., a manufacturer of paper and packaging products, is installing Lawson's procurement, general ledger and human resources applications as part of a re-engineering aimed at knitting together its far-flung facilities.

There was no corporate mandate to use Lawson across the board, said Douglas Marks, a procurement team leader at Union Camp.

"It just sort of happened that way," he said. "But having them as a big supplier hopefully will mean we can get more support and have a better relationship."

Memorial Healthcare System, a taxpayer-supported company in Hollywood, Fla., is doing a similar all-Lawson rollout at four hospitals and its other medical facilities.

Getting an integrated package of business applications was a big goal, said Dennis Miller, Memorial Healthcare's chief information officer.

TOO MUCH

But a full ERP suite such as SAP AG's R/3 "would be way beyond what we need," he added. Besides giving manufacturing a pass, Lawson lags behind other application vendors in supporting sales force automation and advanced supply-chain management, said Jim Holincheck, an analyst at Giga Information Group in Cambridge, Mass.

But those capabilities also aren't especially important to the retail and health care users Lawson caters to, Holincheck said.

Still, even some committed users would like to see a bit more expansiveness in Lawson's product line. Indianapolis-based Mays Chemical Co. chose Lawson to replace an aging set of AS/400 applications.

Lawson fit its requirements better than other vendors except SAP, which "does a poor job of reaching out to companies our size," said Randy Randol, Lawson project manager at the chemicals distributor.

But Lawson's software for managing a warehouse "is not as extensive as we need," Randol added.

Even worse, Lawson pointed him to only one third-party vendor with untried warehouse software that can be tied to its applications.

"As a manager, I don't like not having choices," Randol said. □

KEY LAWSON ANNOUNCEMENTS

- Windows NT 4.0 versions of Lawson's applications are shipping on Oracle and Informix databases
- Support for Microsoft's SQL Server database will be added to the Windows NT release in August
- An upgrade of Lawson's Java-based software for Web browser users is available
- Third-party object modeling tools will be bundled with Lawson's applications in August

SAP AG posts higher earnings than expected

By Mary Lisbeth D'Amico

SAP AG EARNINGS jumped 62% the first quarter ended March 31 compared with the same quarter last year. The earnings leap was higher than expected, SAP officials said.

The company released preliminary results last week.

SAP officials attributed the surge in sales to high demand for its popular R/3 business application software and strong currency conversions, according to a statement. Demand for year 2000 fixes and software that can handle the new European Monetary Unit, or euro, have driven sales of enterprise resource planning software such as R/3 the past few years.

SAP reaffirmed its forecast earlier this year that revenue will climb between 30% and 35% in fiscal 1998.

Analysts have cautioned that SAP's aggressive growth — it expects to increase staff by 40% this year — could spur cost increases and could dent revenue. □

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IMATION

Shop floors eye NCs for ease of use

By April Jacobs

NETWORK COMPUTERS are finding their way onto manufacturing plant floors as dumb terminal replacements. That's because they are easy to support and give end users access to more applications.

Analysts suggest network computers are a good fit for users on manufacturing floors and at call centers and airline ticketing offices. Those users generally need access to a few functions and would benefit from World Wide Web browser access and E-mail.

Beverly Russell, director of information systems at E. D. Smith & Sons, Inc., a jam and jelly maker in Wynona, Ontario, said she plans to set up a corporate intranet that network computer users on the manufacturing floor can access to monitor and analyze statistics about the manufacturing process. Different groups of workers will be able to check their performance, Russell said.

"NCs are cheaper and easier to use than PCs, and I can get that graphical function without the cost and support issues," Russell said.

Users also say the manufacturing floor is a hostile environment for regular PCs. And industrial versions of a "ruggedized" PC can cost up to $2,000 more than a standard desktop machine.

"We have lots of grease and grime and dust in the plant, and that typically causes problems for PCs," said Chris Housley, director of IS at Crosby Group, Inc., a $100 million chain and cable accessory manufacturer based in Tulsa, Okla.

Housley said he has installed 20 IBM Network Stations to replace dumb terminals in the company's customer-service call center and has been able to give them access to new applications as a result. He said he will consider putting more Network Stations in the company's manufacturing facilities.

Users at Crosby Group access AS/400-based applications for order entry and product availability, for example. They also use WinCenter software from Citrix Systems, Inc. in Fort Lauderdale, Fla., to access and create spreadsheets and databases, something they couldn't do with their dumb terminals.

MORE TO COME

Housley said there could be other uses for network computers.

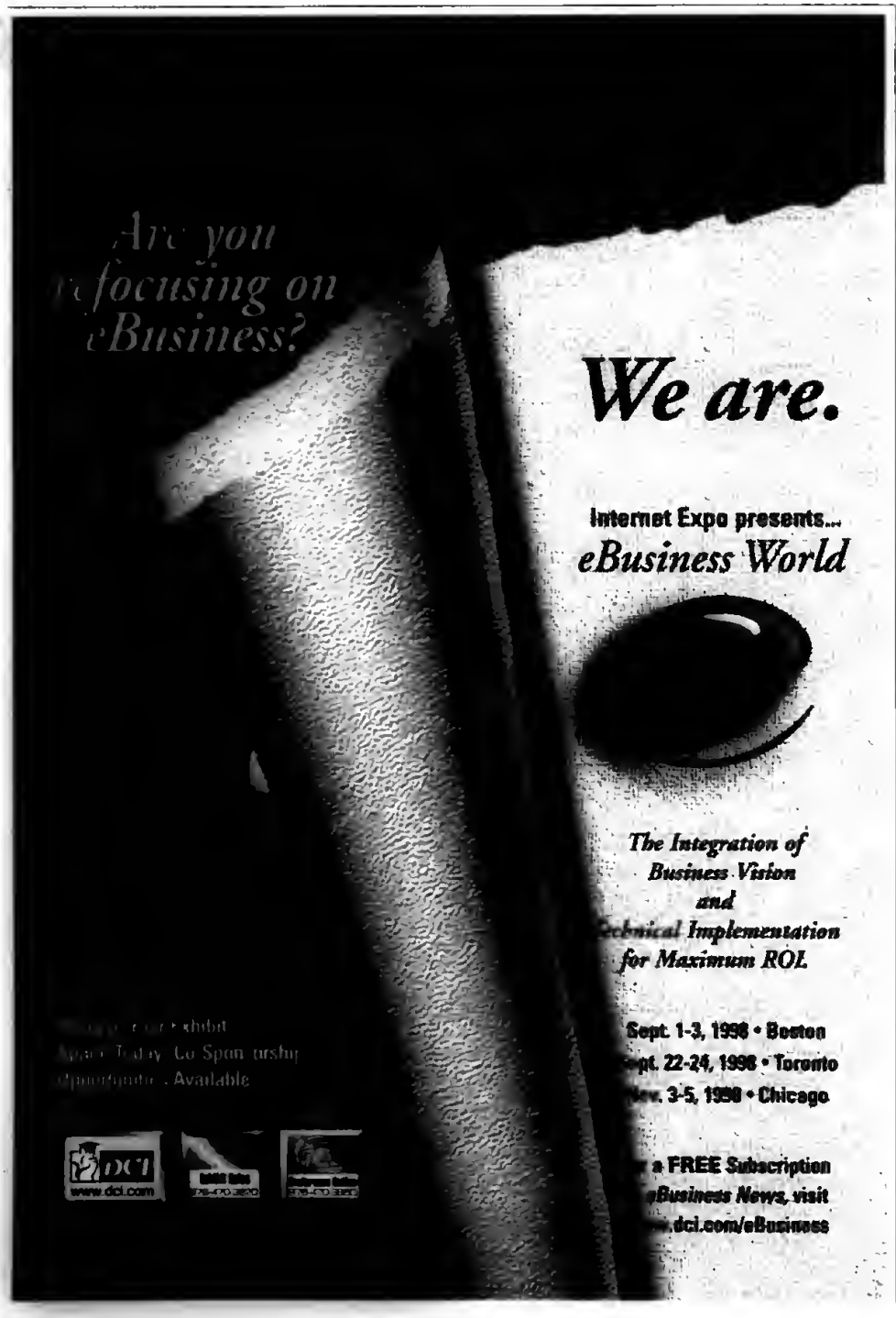
"I think as we go forward in time and [Web-based applications such as Domino] come on strong, there will be applications we can implement most effectively with Network Stations," he said.

Cecil Widener, network manager at Wagner Spray Tech Corp., a commercial sprinkler system maker in Plymouth, Minn., said he replaced terminals with Network Stations based on a PC cost comparison and users' needs.

Widener said he installed Network Stations for $800 each vs. the $1,300 it would have cost for a PC. He said the centralized, server-based administration of the network computers was another benefit.

Users on a Wagner Spray shop floor access AS/400-based applications with Network Stations. And they have access to E-mail and the company's intranet.

"We found that there is no support once you set it up," Widener said. "You can change many desktops by making one change on the server." □



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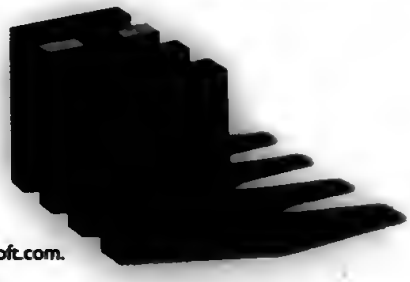

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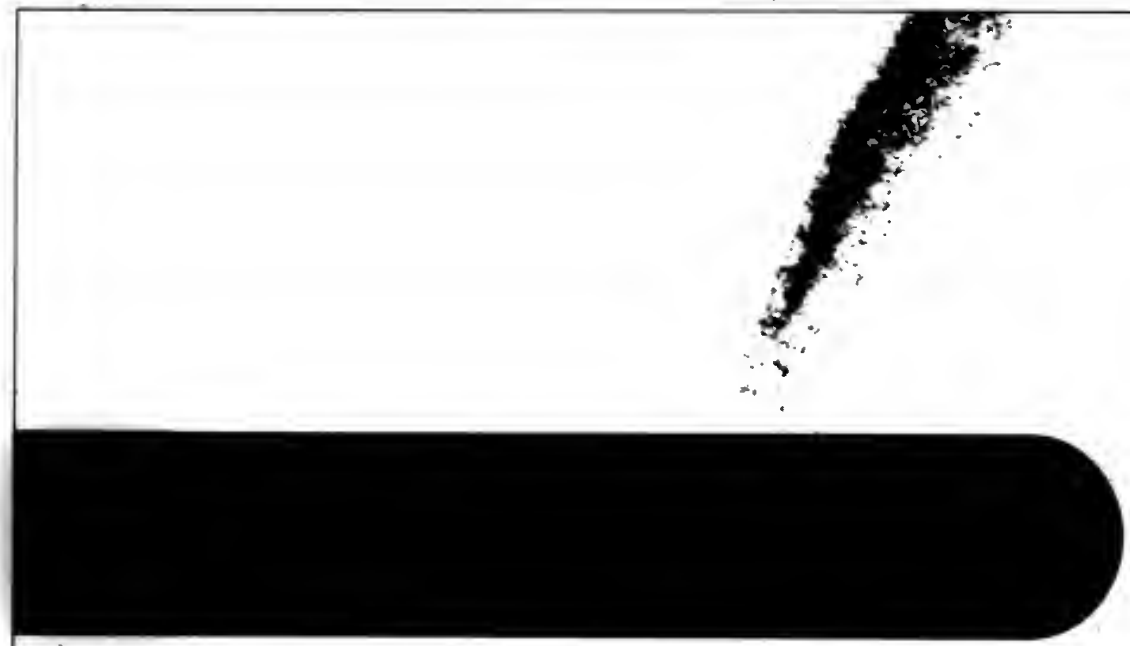

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COMPUTERWORLD

QUICK STUDY

Hot trends & technologies in brief

Unix/NT integration

DEFINITION: Unix and Windows NT integration is a marriage of two very different operating systems. Unix is a highly scalable, reliable, multiuser system that comes in 32- and 64-bit versions. It supports networking and distributed file systems such as Sun Microsystems, Inc.'s Network File System. Windows NT is a 32-bit desktop and server operating system. The two systems can be connected via cross-platform emulation or remote access to both operating systems, and by porting applications between the two environments.

Getting the best of NT, Unix worlds

By Jaikumar Vijayan and Laura DiDio

WINDOWS NT may be making dramatic inroads into the enterprise, but it won't wipe out Unix servers anytime soon.

As a result, many users are finding ways to achieve transparent access between the two environments; an end user would be able to easily access and exchange files between Unix and NT without knowing which system it came from.

AT ISSUE
A technically daunting task

That integration can yield the best of both worlds.

Unix servers perform well as application servers, database servers, network gateways and, increasingly, as Internet servers. Windows NT's strengths are its easy installation and administration, easy-to-use interface, support for many office productivity applications and its ability to run on inexpensive PC platforms.

The most compelling reason for Unix/NT integration is that it lets users retain their investments in Unix while tapping NT's benefits.

But because the operating systems are so dissimilar, melding the two environments is technically daunting.

"It's in Microsoft's best interests to create as many barriers to integration as possible so users will get fed up trying to connect Unix and NT and just say, 'Let's go all native NT,' " says Glenn Gabriel Ben-Yosef, president of Clear Thinking Research, Inc, a Boston-based consultancy.

James Gruener, an analyst at Aberdeen Group, Inc. in Boston, says file and print sharing between Unix and NT has been available for some time. "But true interoperability — the ability to migrate file structures from Unix to NT — has been nonexistent," he says.

But there are a slew of third-party vendors offering integration software and interoperability suites that address specific integration issues.

Those products offer capabilities such as remote log-on, file access and print services, directory and application sharing, and mail and messaging services between the two environments.

With those tools, character-based or graphical Unix applications can be accessed from NT desktops; files can be shared between the two environments; Unix applications can run directly on Windows NT servers; and NT applications can be distributed over a Unix network.

Porting tools and cross-platform development software are also available (see chart) for fairly painless migration from one environment to the other.

Those tools provide application programming interfaces and emulation environments for both operating systems. □

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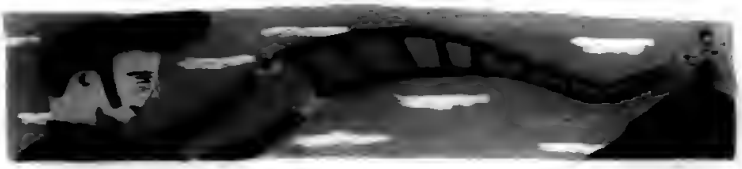

IGNATIUS GIMONDES

Tools for Unix/Windows NT integration

VENDOR	PRODUCT	FUNCTION
Porting tools:		
Bristol Technologies, Inc.	Wind/U	Creates native Unix applications from Win32 API's and Visual C++ code.
DataFocus, Inc.	Nutcracker	Builds Windows applications from Unix code.
Mortice Kern Systems, Inc.	MKS Toolkit	Creates scripts and automates tasks.
Softway Systems, Inc.	OpenNT	Allows native Unix development on top of NT.
Interoperability tools:		
Citrix Systems, Inc.	WinFrame	Provides access to NT applications across any type of network to any type of client.
Hummingbird Communications Ltd.	Exceed	Gains access to Unix applications from NT clients.
Insignia Solutions, Inc.	NTrigue	Displays NT server applications in Unix systems.
Tektronix, Inc.	WinDD	Allows X terminals to access NT systems.

The thorniest Unix/Windows NT integration issues

ISSUE	SOLUTION
Accessing character-based Unix applications from an NT desktop	*Use third-party emulation software on top of NT.*
Accessing graphical Unix applications from an NT desktop	*Use third-party PC X server software on top of NT.*
Running Unix applications on Windows NT Server	*Use X Window System development tools to run the Unix application on NT.*
Accessing Unix server-based files from NT clients	*Run third-party Network File System (NFS) client software on Windows NT.*
Sharing files between NT and Unix servers	*Run Unix NFS server software on Windows NT Server.*
Distributing Windows NT and Windows 3.x and 4.x applications over the corporate network	*Use third-party encapsulation products on NT servers.*

Source: Hummingbird Communications Ltd. in North York, Ontario

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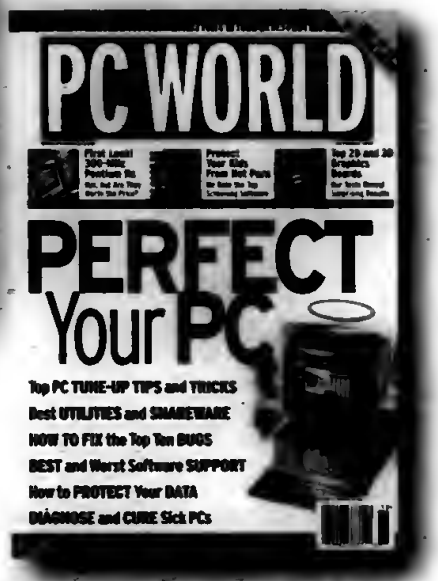
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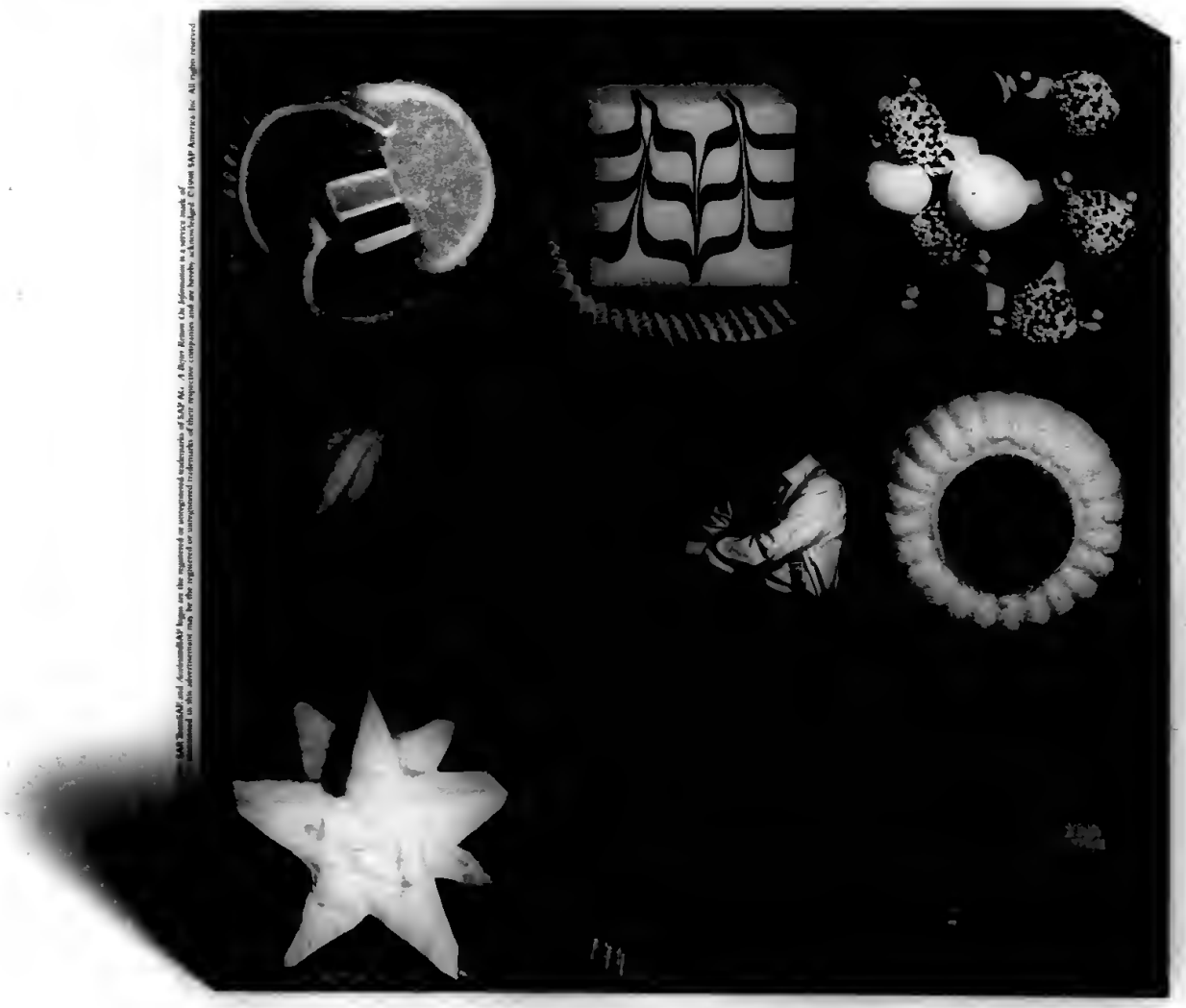
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Joe Dunne, President, Cultor Food Science, Inc.

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OPINION

Beauty and the software beast

Elegance. Simplicity. Beauty. How often do we hear such poetic words applied to software? Who on earth would put the binary search algorithm alongside the Mona Lisa on the same neural pathway in our brains?

Great programmers would, as Gary Anthes' *In Depth* story reminds us (page 85). What often escapes notice these days in the hustle of business needs and the bustle of user demands is the underlying craft of creating elegant, well-organized code. Already, there is the echo of a lost art surrounding it. Users actually expect the software they buy or download from the Web to be half-baked and larded with annoying bugs. The fix? Check the next release.

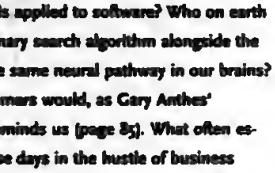
As Du Pont's David Pensak so aptly put it in our story, programmers should spend more time thinking, and less time coding. That kind of time-and-thought investment marks the work of renowned programmers such as Java creator James Gosling, Smalltalk creator Alan Kay and lesser known figures such as Thomas Sorgie at American Management Systems.

Sorgie used native C++ and Java to create a complex transaction processing module in only 450K bytes. The same application in PowerBuilder on Windows took 30M bytes when installed. Stunning difference, isn't it? One is a graceful ballet dancer, the other a hulking sumo wrestler.

Fat and sloppy code translates directly into lousy software quality. Just raise that topic in a room full of IT professionals and watch the number of heads that shake in disgust. Even worse, in resignation.

Commercial software vendors fielded 200 million calls for technical support in 1996 — a $4.6 billion expense — and about 38% of those calls were made because of bugs, says software quality expert Cem Kaner, author of *Testing Computer Software*.

Yet in the numerous surveys *Computerworld* has conducted in recent years among Fortune 1,000 IT executives and managers, software quality rarely if ever has made the top five on their list of priorities. So it's fitting punishment, perhaps, that we end up not with the software we could have, but with the software we deserve.



Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

Poor Y2K plans could bring air traffic control to a halt

THERE ARE only a few industries in which computer failure would bring our country to its economic knees. The banking industry is the most obvious and the one *Computerworld* highlighted in its Feb. 16 article on the year 2000 problem ["Y2K shortcoming may shutter some banks"].

Another computer system that has no competitive forces driving the year 2000 solution — nor any true system backup — is our nation's air traffic control system.

The Federal Aviation Administration's (FAA) modernization efforts in this area have failed again and again, and its plodding mismanagement style is largely responsible for the looming year 2000 crisis in air traffic control systems.

Even so, FAA officials confidently assured a skeptical House Science Committee in early February that they will have a year 2000 solution in place to avoid collapse of the air traffic control system.

What if they don't?

What our country needs is a secondary, partial air traffic control system built outside the FAA's current system.

The technology exists, but the political will to force the FAA to do its job is sorely missing.

It's a big mistake to assume that the FAA will keep us safe and the airplanes moving.

Capt. R. Michael Baiada
RMB Associates
Evergreen, Colo.

Viewpoints draw the line between users and vendors

HOW CAN William Blundon and Rob Enderle have such antagonistic, yet legitimate opinions ["Is Windows dead?" CW, Feb. 16]? It's because they have different perspectives: Blundon's is the client's perspective, and Enderle's is the vendor's ["Windows is fine"].

As a client, I concur with Blundon. What I want is instant gratification and, please, no maintenance.

To use a car analogy, I don't want to have to look under the hood. I just want to drive.

Christine Gentilhomme
Oakland, Calif.
cgentil@aol.com

Been there, done that: DOJ repeats antitrust mistakes

WITH REGARD to Microsoft learning from history: Obviously, the Department of Justice hasn't ["Rearview mirror," CW, March 2]. The Justice Department wasted a lot of time and money pursuing IBM and AT&T in its inane quest to conquer "monopolies" that were perceived to be bad for consumers. The rest of the world outside the U.S. doesn't have a problem with Internet Explorer 4.0 being incorporated into Windows. The U.S. is only one of many players in cyberspace.

In its pursuit of antitrust, the Justice Department could well make us noncompetitive with the rest of the world if everyone decides to go with the bundled stuff.

Gary L. Franks
Director
Computer Systems Technology
SSOE, Inc.
Toledo, Ohio
gfranks@ssoe.com

Think doctors are arrogant?

I READ WITH some amusement your "Systems in stitches" story [CW, Feb. 23], which opens: "It isn't brain surgery, but trying to get two different mainframes at two hospitals to work together is no less complex."

As an expert in both information technology and clinical medicine, I can honestly tell you that brain surgery is far more complex and requires far more training, knowledge, experience, risk, nerve, care, skill and precision than interfacing two mainframes or most other IT projects.

Brain surgery is far more complex than most IT projects.

I find the article amusing because it promulgates to your readership exactly what physicians with some computer knowledge get accused of: arrogance. I find that many IT projects in health care fail because of insufficient understanding of clinical issues by IT personnel.

Dr. Scot Silverstein
Director of clinical informatics
Christiana Care Health System
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More visas? A good move for IS

Sound Off! Should the number of available H-1B visas for technology workers be increased? The Institute of Electrical and Electronics Engineers says no. The Information Technology Association of America says yes. We invited the heads of those organizations to have at it.

THE U.S. IS SUFFERING a major shortage of IT workers. The classified ads in any major newspaper tell part of the story. What they don't indicate are the thousands upon thousands of jobs that are open but not advertised because the assignments could be duplicative, because some jobs must be filled more quickly than others or because the employer may have run an ad several times and not found qualified applicants.

Want more proof? In partnership with Virginia Tech University, the Information Technology Association of America (ITAA) found that there are 346,000 vacant jobs for programmers, systems analysts and computer engineers.

The intense competition among hiring managers has fostered double-digit annual salary increases, referral and hiring bonuses, stock options, lifestyle accommodations such as flex time and telecommuting, and many other benefits. IT companies routinely rank among *Computerworld*'s "Best Places to Work," an acknowledgment that companies can't afford to be complacent about their critical human resources.

Although the short-term employment picture favors the wage earner, storm clouds are forming just over the economic horizon. Why? A hiring frenzy among companies for the same pool of people is a net sum loss, depriving companies of the predictability necessary to plan business expansion. A worker shortage means slower business growth, diminished product and service quality, and competitive disadvantage for the U.S. in global markets.

A hiring frenzy for the same pool of people is a net sum loss.

Harris Miller

The only responsible long-term answer is to expand the pool of appropriately skilled workers through better education, outreach and retraining. The ITAA, working in conjunction with the U.S. departments of Commerce and Education and the University of California at Berkeley, conducted a major national workforce convocation in January to begin that dialogue.

In business, the future is now. So short-term approaches to the worker shortage must include increased business immigration.

Sen. Spencer Abraham (R-Mich.) recently introduced the American Competitiveness Act, which would increase the number of visas employers can use to hire foreign professional workers. Often misunderstood, the H-1B program is a visa category for highly skilled nonimmigrants employed on a temporary basis. These individuals work in any number of industries, including health care, education and high tech.

Though critics contend that employers use the visa program to undercut the job market, just the opposite is true. Companies that hire these foreign professionals must follow strict guidelines to protect U.S. workers' wages; paying less than the prevailing wage to perform the same work is against the law.

But even dispelling the myths surrounding business immigration fails to communicate the whole story: The H-1B visa program benefits U.S. workers. Foreign professionals build companies, programs and products in this country. And that creates American jobs, generates American copyrights and patents, produces American dividends, pays American taxes and contributes to the American commonweal.

We must do more to prepare our citizens for the 21st-century economy. The answers lie in industry, government, academia and workers cooperating in collaborative approaches, not in debating the obvious about job vacancies. We must make the long-term investments necessary to broaden the pool of U.S. workers. But we must also protect our markets and competitive advantage by having access to the right workforce now.

Avoid the trap of either/or thinking. Keep the U.S. the world's IT leader. Increase the cap on temporary foreign workers. □

Miller is president of the ITAA.

More visas? A windfall for lawyers

IS WHAT'S GOOD for immigration lawyers good for America? A slick PR and lobbying campaign would have us believe that the U.S. needs a half-million more high-tech guest workers over the next several years.

Aside from a windfall to lawyers and corporate wagebusters, though, Sen. Spencer Abraham's H-1B expansion bill has nothing to offer this country.

The interests of U.S. industry, native- and foreign-born tech workers and the general public would be better served by relying on the free market and true immigration.

H-1B visa holders aren't immigrants. Unless they can obtain green cards, they must go home — taking valuable skills and training with them — after their visas expire. While in the U.S., they are virtually indentured servants, subject to deportation if they lose their company sponsorship. As a result, H-1B workers earn as much as a third less than prevailing wages in their fields.

They also exert downward pressure on the wages and working conditions of their U.S. co-workers, whose salaries have declined in real terms during the past decade.

In a free market, high demand for workers in a particular occupation boosts wages. New people are then attracted to the field, restoring the balance between supply and demand.

Glutting the labor market with workers who earn artificially suppressed wages destroys that salutary effect of the free market. The resulting lower wages and higher unemployment discourage the best and brightest from entering the field, and the dependence on foreign labor becomes ever greater. And when we can't produce enough engineers and computer scientists, our long-term technological competitiveness and even our national security are threatened.

The best solution to the tight labor market is to retrain displaced workers, attract underrepresented women and minorities, better educate our young people and recommission willing and able older workers. Market forces are already pushing enrollments up dramatically in computer-science programs. We must eliminate corporate-cultural barriers that many people say prevent qualified mid-career and older professionals from working in IS. And training programs can produce capable new IS workers in relatively short order.

Immigration has a role, too: Let's streamline the process whereby companies can sponsor a foreign worker for a green card. There are about 40,000 unused slots yearly for these skilled permanent immigrants, each of whom will contribute a lifetime to the U.S. economy and will enjoy the same workplace rights as U.S.-born workers.

John R. Reinert

After their visas expire, H-1B workers go home – and take their skills with them.

Strangely, though, the Information Technology Association of America hasn't endorsed a bill sponsored by Rep. James Moran (D-Va.) that would exempt 25,000 additional high-tech immigrant applications from labor-certification requirements.

A guest-worker labor policy exploits foreign workers, ratchets down wages and working conditions for U.S. workers and erodes vital technical infrastructure. In the final analysis, efforts by government, industry and professionals to create productive, rewarding and lifelong technical careers for both U.S.- and foreign-born workers will best ensure an adequate supply of the world's premier technologists for years to come. □

Reinert is an engineer in Colorado Springs and president of the Institute of Electrical and Electronics Engineers — USA.

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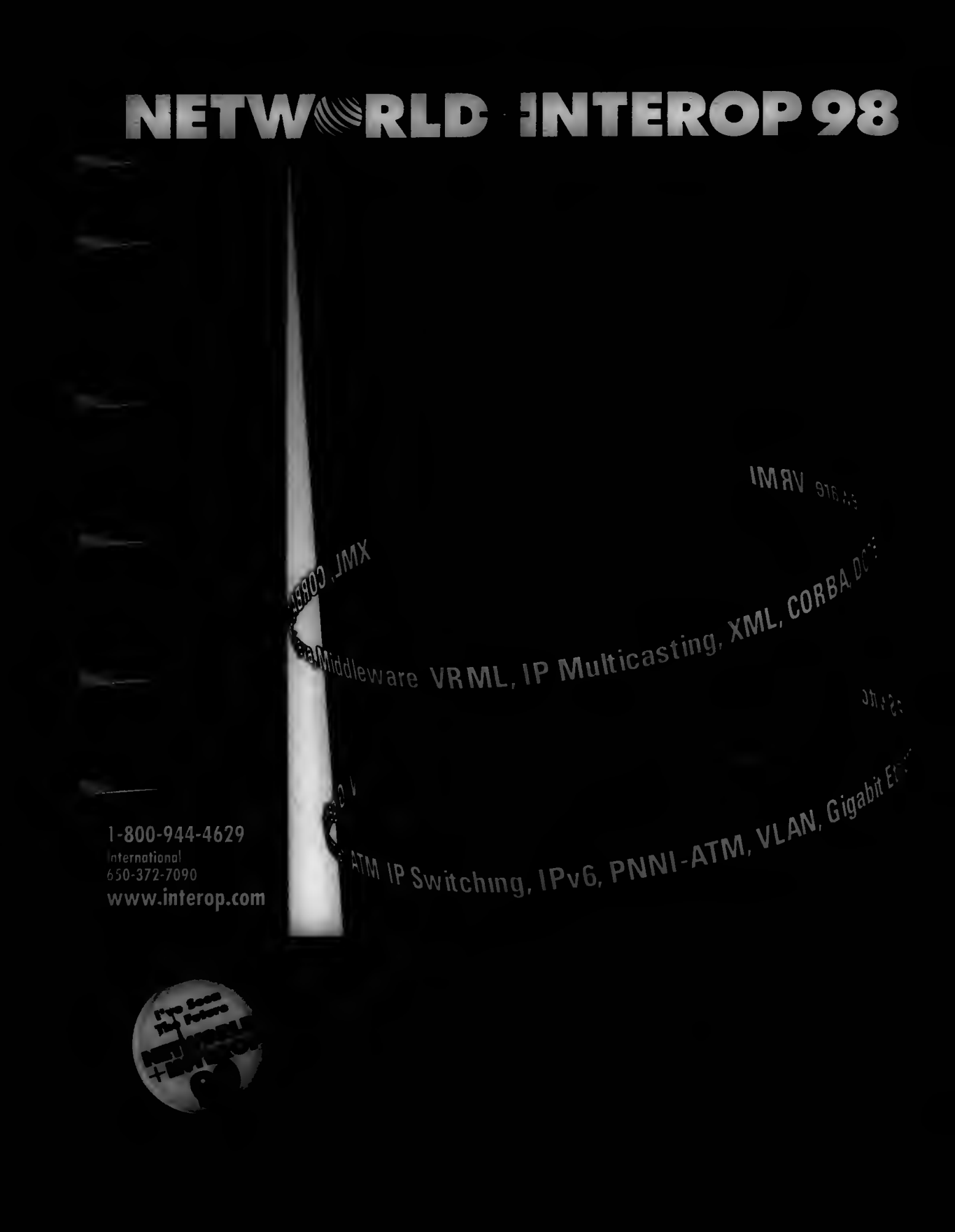

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'Astroturf' PR campaign exposes Microsoft goals

Dan Gillmor

Influencing public opinion is big, and often slippery, business. The public relations industry and its clients have recently grown fond of an especially devious technique called "astroturf."

IS should be cheering for the Justice Department and against the age's most dangerous monopolist.

With astroturf, companies or industries create the impression of a grassroots groundswell by planting letters to the editor and op-ed pieces in newspapers, secretly organizing letter-writing campaigns to lawmakers and the like. When it works, astroturf politics can be enormously effective because it appears to be a spontaneous outpouring.

The world recently learned that Microsoft, under legal fire for alleged monopolistic business practices, planned such a campaign. Documents prepared by one of the nation's biggest public relations firms and leaked to the *Los Angeles Times* described an elaborate effort set to coincide with Washington hearings and what seem to be imminent antitrust cases by the U.S. Department of Justice and 11 state attorneys general.

That's all good news for IS. People in the industry should be delighted that Microsoft got caught doing what comes all too naturally in this truth-challenged era. And they should be cheering for the Justice Department and state legal teams because U.S. companies will be the biggest winners if serious antitrust actions restrain the age's most dangerous monopolist.

The biggest surprise about the astroturf documents isn't that Microsoft would resort to deception. Rather, it's what the campaign said about Microsoft's view of its own position. Companies that use astroturf concede that the public would be less inclined to believe their side if it knew who was pulling the strings. That tells you that Microsoft, which has enjoyed substantial public support, believes the public's trust has wavered.

If so, it's about time. For years, Microsoft has enjoyed adulatory press coverage, uncritical wet kisses from journalists seduced by stories of wealth and innovation. Coverage has properly noted Microsoft's greatness in some respects but has failed to probe its robber-baron business tendencies.

IS has benefited handsomely from Microsoft's better nature — the company's ferocious drive to win business and, when faced with competition, to improve its products. But IS now runs a serious risk of ceding control of the enterprise to Microsoft even as the company's grip grows firmer.

Microsoft will raise prices when it gets the chance, as when it all but eliminated concurrent-use pricing for its Office suite last year. And absent competition, it has shown it will let products languish. That isn't abnormal; it's merely corporate nature. But when a company holds a monopoly, customers have few options.

The current antitrust case, about whether Microsoft can declare its Web browser to be part of the operating system, is a sideshow. The browser isn't the issue — in fact, there's every reason to support Microsoft's right to add HTTP and HTML services to Windows. The real issues are the company's frequently brutal business tactics and the way it leverages its monopoly in operating systems to grab new markets and put competitors out of business.

IS should recognize Microsoft's ambition: to control the choke points of commerce and communications. Then IS should ask whether a monopolist is likely to be more concerned with its customers' best interests or its own.

The answer should be obvious. And that's why IS should be cheering, in a quiet sort of way, for the Justice Department and its state counterparts to serve the public good by enforcing the antitrust laws of this nation. □

Gillmor is computing editor at the San Jose Mercury News. *His Internet address is dgillmor@sjmercury.com.*

Whither globalism?

David Moschella

Will corporate America ever feel more full of itself than it does right now? The Dow has breached 9,000, and once-feared Asian rivals continue to spiral downward. A series of ever-bigger mergers steadily rolls forward, creating new levels of wealth, power, concentration and publicity.

Where will it all lead?

It's easy to see the current boom as the result of a once-in-an-eternity shift toward a truly global economy. If, through technology and know-how, Citicorp, Travelers, Merrill Lynch et al. can provide better investment returns to long-suffering Japanese savers, then who cares about the impact on domestic Japanese banks? Certainly not the Japanese consumers who are waiting in line to become Citicorp customers — an unimaginable reality just a few years ago.

On the other hand, anyone who has studied even a bit of business history must feel a rising sense of deja vu. It was almost exactly a century ago that the world went through a similar period of business gigantism. Monopoly tycoons, vertical integration and interlocking corporate trusts dominated the global business climate of the 1890s.

When U.S. public opinion turned against unchecked corporate power, predatory competition, vast income inequalities and abusive worker conditions, a new "progressive" era of antitrust legislation, business regulation and worker protection ensued.

As I observe today's public thrashing of Big Tobacco, rising complaints about airline price gouging, European efforts to block the expansion of Rupert Murdoch's media empire and, of course, concern about the enormous power of Microsoft, I sense the public once again believes the unregulated global market is beginning to overstep its bounds.

Of course, whether tomorrow's market will be fettered or unfettered remains to be seen. But either way, the computer industry will be directly affected. After all, it's technology that makes it possible to run a global business 24 hours a day 365 days a year. It's technology that enables Merrill Lynch to accept money in Japan and invest it wherever it gets the highest return. And it's technology that tends to reward the global market leaders, as corporate knowledge gets amortized across an ever-larger base of customers.

In *The Commanding Heights*, a comprehensive global analysis, Pulitzer Prize-winning business author Daniel Yergin identifies five big questions that will likely determine which way public opinion will move.

It's technology that tends to reward the global market leaders.

Three of them are particularly relevant to the computer industry.

1. Will the market continue to deliver the goods in terms of rising incomes and standards of living?

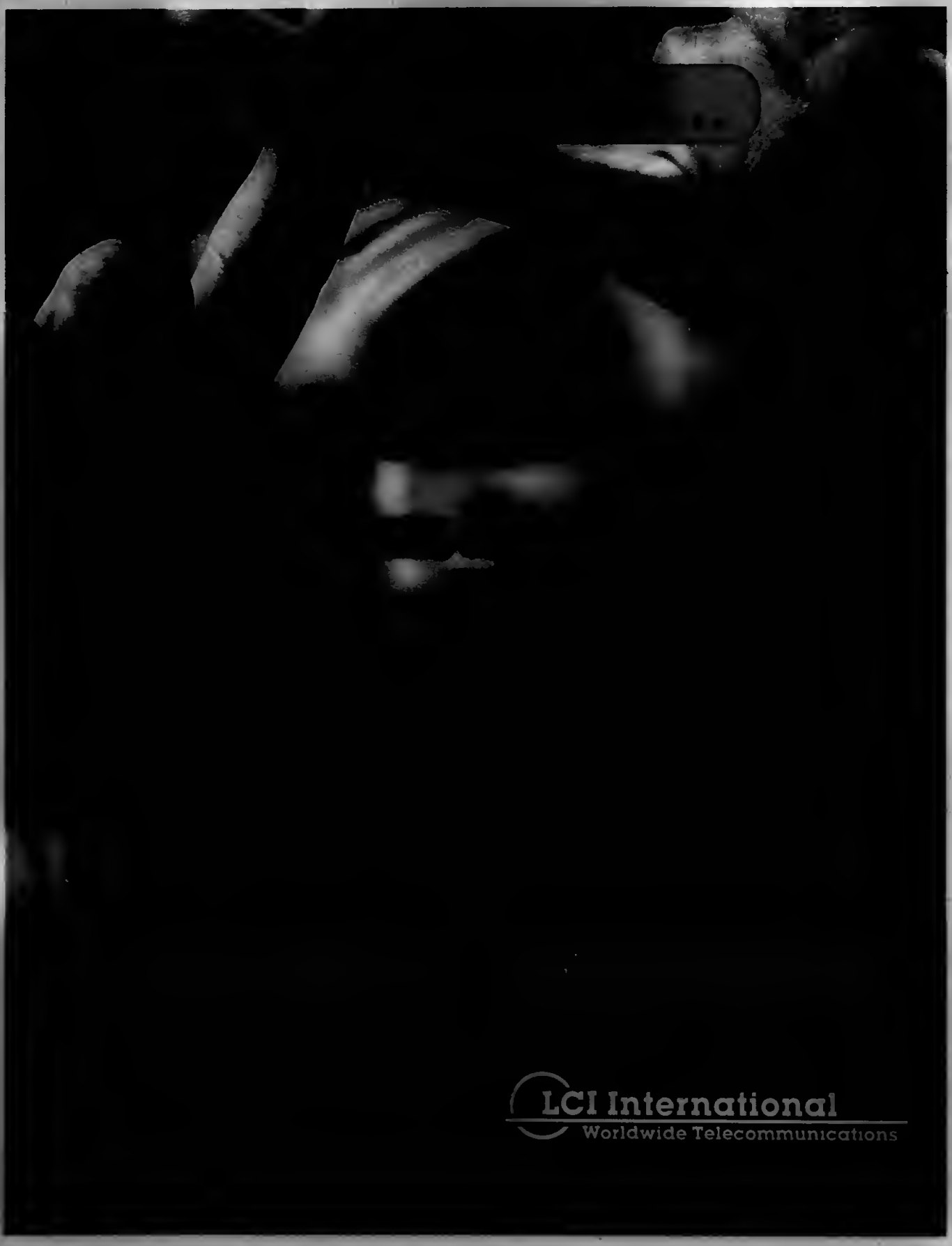
2. Will the results of global market competition be perceived as generally fair and equitable?

3. Will the results of competition be compatible with our cultural desire to preserve strong national identities?

Technology is now so intertwined with the economy that questions such as these will determine the charter the industry is granted. Technology and open global markets may go hand in hand, but support for global markets is a matter of public opinion. The task of convincing the world that technology and globalism are in its best interest will never be easy and will never be complete.

After a decade of affirmation, Yergin's three big questions are showing ominous signs of shifting the other way. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is dmoschella@earthlink.net.*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Briefs

Probabilities of year 2000 damage

Credit report errors	70%
Loss of electrical power for more than one day	55%
Loss of international telephone service	35%
Loss of local telephone service	20%
Manufacturing shutdowns of more than one day	20%
Bank account balance errors	15%

Source: Capers Jones, Software Productivity Research, Inc., Burlington, Mass.

Users offer free cost calculator

▸ PC cost model cuts TCO estimate footwork

By Patrick Dryden

A PHILADELPHIA-BASED insurance company that spent months coming up with a realistic estimate of the cost of its distributed PCs is offering to save peers months of work on similar projects.

The information systems group at General Accident Insurance Co. is offering to share the model it used to help calculate total cost of ownership (TCO) for 5,500 workstations at 40 sites. The model is available at *www.genacc-us.com/tco.htm*.

It isn't a worksheet that can automatically calculate TCO for any organization; it's a set of definitions that outline how to assign costs. Using the model can save months of groundwork, its authors said.

"Our template and guidelines should save at least 300 hours of effort defining how to measure TCO," said Greg McAndrews, a financial business consultant at General Accident and leader of the TCO project. The total project time was about 800 hours, McAndrews said, with more than half that spent defining and fine-tuning cost allocations.

After downloading the information, another IS group could accept or adapt the rules for itemizing and calculating the many different costs associated with PCs. Then the group could apply details about its own configuration to reach a TCO value.

The model isn't limited by industry or configuration, but it

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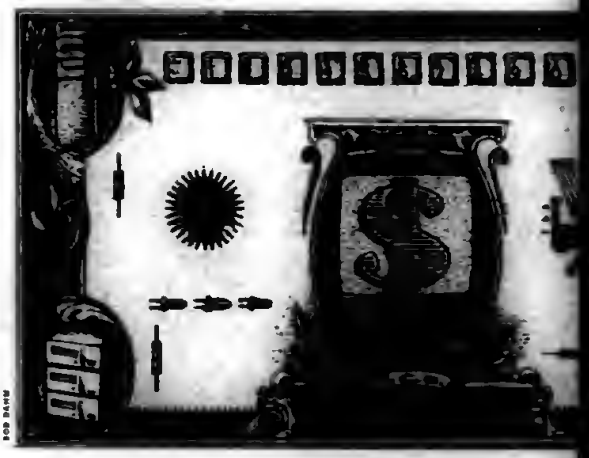

BOB DAVIS

Walgreen heals prescription net

▸ Revamp fixes crash-inducing bottlenecks

By Thomas Hoffman

WALGREEN CO. has found a cure for capacity issues that last year forced it to suspend the rollout of a dial-in prescription network to more than half of its 2,000-plus outlets.

The $13.4 billion drugstore chain ran into bottlenecks that caused the system to crash. At the time, the company had rolled out its Intercom Plus network to 800 of its then 2,238 pharmacies (CW, Jan. 27, 1997).

After an extensive review, Walgreen technicians determined that its Sequent Computer Systems, Inc. SE 80 central processors and its Oracle Corp. database software were being overwhelmed with data each time a prescription was added to the system, which houses records for 40 million patients.

That's because each time a prescription is sent to Intercom Plus, the system runs up to eight communications "checks" with the central processors. The checks could be for information on patient profiles, potential drug interactions and allergies, and payment settlements with managed health care plans, said Dave Bernauer, Walgreen's senior vice president and chief information officer.

DÉJÀ VU

WHATEVER HAPPENED TO:

Walgreen's prescription system

www.computerworld.com/walgreen

"We were asking a lot of these [systems] to do things they'd never done before," Bernauer said. Walgreen's 13-year-old IBM mainframe-based pharmacy network, for example, wasn't integrated with each pharmacy's counting machines used to fill prescriptions.

Although the capacity problems primarily stemmed from central processor limits within the Sequent and Oracle systems, the problems weren't restricted to them.

Last spring, Walgreen and Andersen Consulting technicians found that 20 of the 40

Walgreen, page 46

Y2K: Hospitals upbeat

By Matt Hamblen
ATLANTA

If the health care industry is as likely as analysts say to have computer problems after Jan. 1, 2000, there might be one silver lining to the dark cloud: Health care personnel are used to dealing with emergencies.

Year 2000 managers at hospitals and medical research facilities attending the Brainstorm Year 2000 National Symposium recently swapped stories of problems they are having getting medical equipment vendors to certify that thousands of

Hospitals, page 46

HUMAN RESOURCES

Technology keeps tabs on stress

By Tim Ouellette

COMPANIES ARE TURNING to computer technology to track worker stress levels and get a jump on problem areas in the workplace.

The goal is to improve communications with employees and slash the time it takes for management to identify sources of stress affecting workers.

New approaches include an E-mail survey service that lets employees anonymously rate their current views of the company and its work every week.

Stress, page 46

CLUED IN

Do IT managers know whether their employees are stressed?

Base: 62 IT workers; preliminary study findings

Source: Eugene Kaluzniacky, University of Manitoba, Winnipeg

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Baan training

Deloitte & Touche Consulting Group in Chadds Ford, Pa., has unveiled a formal training program for The Baan Co. products. The role-oriented training is specific to end-user jobs and tasks. A development tool kit includes documentation, a sample project plan and templates for integrating work procedures with Baan procedures.

More Y2K tools

IBM has released four tools to help users of its OS/390, MVS, AIX and OS/2 platforms solve their year 2000 problems. They include a Millennium Language Extension, which automates date century windowing, and a Millennium Date Compression Tool, which changes customer data on the fly. The suite also includes an application testing tool collection.

Filling jobs faster

Yale University and the University of Nebraska's medical center have chosen Resumix, Inc.'s Resumix System 5.3 to manage employee recruitment and retention. Medical center officials said the system will boost the number of job requisitions the human resources department can handle by up to 50%. Yale expects to cut the time it takes to fill a job from four weeks to six days. Resumix is based in Sunnyvale, Calif.

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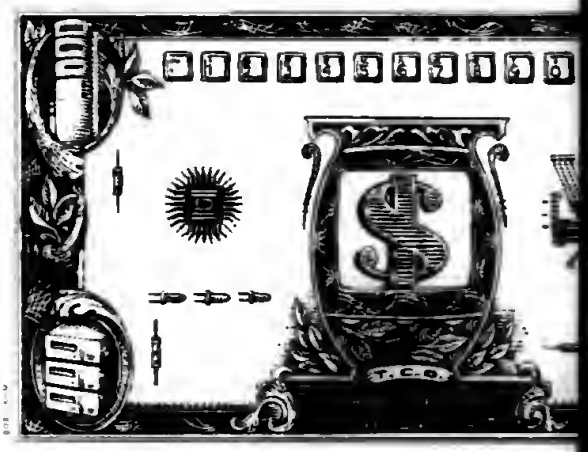

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Stress, page 48

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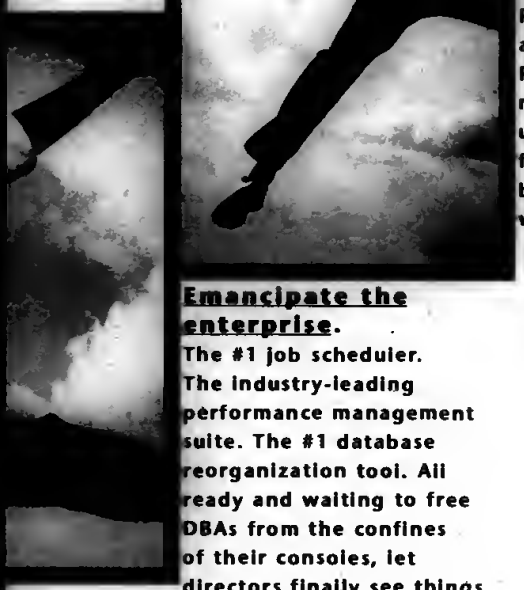

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PLATINUM TECHNOLOGY

Hospitals can handle year 2000

CONTINUED FROM PAGE 43

health care devices, from blood-testing machines to pacemakers, are year 2000-ready.

And they seemed to agree with a report from Gartner Group, Inc. in Stamford, Conn., that nearly seven out of eight health care groups risk failures because of their insufficient response (CW, March 2).

VHA, Inc. (www.vha.com), a nationwide network of nonprofit hospitals in Irving, Texas, has opened its Year 2000 Collaboration subscription to non-VHA members. That will allow hospitals to share testing information about medical devices and other year 2000 topics

Yet they overwhelmingly were upbeat and said hospital staff members seem to understand how to deal, at least psychologically, with catastrophes.

DISASTER PLANS

All hospitals have disaster plans on file with their communities, and they frequently test them. And experience dealing with major hurricanes, earthquakes and other disasters will help if year 2000 fixes fizzle, they said.

"I don't think we'll have uncontrolled disasters" in hospitals nationwide, said Patrick Davitt, manager of year 2000 at the Mayo Foundation in Rochester, Minn. "Rather than a hurricane striking, it will be more like El Nino, with a little more rain here and less there."

Davitt's first real test of systems readiness comes July 1, when an 18-month patient reservation system must be ready to track patients for clinic visits after Jan. 1, 2000. "It will be ready," he said with confidence.

Hospital officials from Southern states said they have long made it a practice to stockpile pure water, fuel for generators and spare medical parts to prepare for hurricanes.

That preparation also should help in case of year 2000 disruptions.

"There's a lot we won't have to worry about because of where we are in South Florida," said Brad Martin, director of information services at Delray Community Hospital. "We know our emergency generators work."

Carl Cloer Jr., chief information officer at Singing River Hospital System in Pascagoula, Miss., said the six-county hospital system already has a stockpile of spare parts in warehouses in the southern part of the state. That will help if, for example, rubber glove suppliers' inventory controls fail, he said.

"If I lose voice and wireless contact with doctors and ambulances, the backup is my old analog paging system that I have in storage," Cloer said. "I wouldn't let them throw it away, and I have the antennas and all of it. It might come in handy."

TESTING ESSENTIAL

Year 2000 managers generally agreed that although some equipment makers have said their devices, including pacemakers, aren't affected by year 2000 problems, the devices still need to be tested.

Hospital officials said they need to share test results. VHA, Inc., an Irving, Texas-based nationwide network of nonprofit hospitals, announced that it plans to share its year 2000 information with other health care providers.

Sharing information is important because testing and making year 2000 improvements are expensive.

For example, Davitt said his costs have grown six times since 1996 and now total millions of dollars. □

Walgreen network

CONTINUED FROM PAGE 43

hardware and software systems that make up the client/server network had to be tweaked for the system to run properly, Bernauer said. Walgreen had to get patches from some software vendors to add functions specific to its system and to increase throughput.

Walgreen also added two Sequent NUMA-Q servers last summer to bolster its processing capacity.

Walgreen met its original goal of rolling the network out to its now 2,446 pharmacies by early this year. The four-year, $150 million project ended up costing "in the neighborhood" of its original budget, a spokesman said.

Walgreen CIO Dave Bernauer: "You can't be a pioneer without getting a few arrows in the back"

FILLING NEEDS

Walgreen pharmacists still are learning the system, but the new network is expected to slash 30% of the time pharmacists spend filling out prescriptions by automatically entering patient information. That's expected to help the average Walgreen pharmacy in the next two years increase its daily prescriptions filled from 250 per day to 400, Bernauer said.

Walgreen said that its stores currently fill about 8.5% of all U.S. retail prescriptions. Its biggest competitor, Woonsocket, R.I.-based CVS Corp., claims to fill 12% of all prescriptions.

Plus, Walgreen pharmacists should have more time to consult with patients and provide more personalized service, analysts said. "Pharmacies don't compete on price, because customers typically get reimbursed [by health maintenance organizations] for prescriptions," said Derek Leckow, an investment analyst at Barrington Research Associates, Inc., a Chicago-based broker/dealer.

As a result, service will become "the key differentiator," he said.

Leckow said Walgreen's "technological innovation" and consistent store layout will help it compete for the industry's top share of the market against CVS, which last month continued its nationwide expansion with the $1.48 billion acquisition of Troy, Mich.-based Arbor Drugs, Inc.

Looking back, Bernauer said, his team could have been "a little more cautious" about its aggressive rollout schedule. Then again, if Walgreen hadn't pushed the network out to hundreds of stores so quickly, it wouldn't have encountered the systems problems and reacted to them as quickly as it did, he said.

"You can't be a pioneer without getting a few arrows in the back," Bernauer said.

Dan Jorndt, Walgreen's president and chief executive officer, agreed.

Jorndt said Intercom Plus "helps [Walgreen] provide better service to our patients" and makes the retailer more competitive. □

MORE ONLINE

For a look at last year's Computerworld story on Walgreen's prescription system, go to www.computerworld.com/cwi/story

Free PC cost model

CONTINUED FROM PAGE 43

aligns basic costs for hardware, software and employees with most general ledger categories, according to McAndrews.

TCO calculation is difficult and results are varied because without a standard methodology everyone assigns costs differently, said Briggs Johnson, IS vice president at General Accident.

The team at General Accident started with broad TCO estimates from Gartner Group, Inc., IBM and others, and tailored the estimates to meet its own needs.

For example, the model calculates employee productivity lost because of LAN server crashes and training time, based on actual company history spanning three years.

"Models we saw were imprecise and didn't reflect the real world," Johnson said. Before the team could calculate TCO, it had to spend nine months deciding how to split shared costs for security, networking and other factors between the desktop and mainframe worlds.

Consultants who offer such services would just ask for the company's inventory, billing and budget information and then go through the same process the General Accident team did to sort out costs, Johnson said.

"This could be the first brick in the yellow brick road to understanding your TCO."
– Bill Kirwin, analyst, Gartner Group

McAndrews estimated that other IS groups will need about 75 hours to understand the model's definitions and adapt them to their organization's environment.

And they still must do a lot of work before calculating TCO. Organizations that lack clear asset management tools and processes may have to count their PCs for the first time. "You can't get away from checking your inventory," Johnson said.

Next, companies must develop an intermediate database to gather inventory details, event logs and general ledger sources, McAndrews said. "You can't just plug numbers in to the template." He said his team had to create a 2,000-record database and feed it information about software titles, LANs and training classes, for example, to calculate the cost required to teach users packages and features.

General Accident learned that it spends less per PC than industry averages suggested by Gartner Group, but the template promises business benefit far beyond that report card.

"The final objective is not just to determine costs but to improve on costs," Johnson said. The parent corporation relies more on host-based applications and terminals, he said, so it is concerned about high end-user computing costs in the U.S. division.

"Now for the first time we can see exactly what percentage of TCO we spend on support and training," McAndrews said. Examining TCO results also can reveal whether PC procurement cost is too high, indicating potential savings through leasing, he said.

"This could be the first brick in the yellow brick road to understanding your TCO," said Bill Kirwin, a research director at Gartner Group in Stamford, Conn., who provided some assistance during the project.

However, Kirwin cautioned that users must carefully examine all cost assignments before applying the model to their management practices.

And he recommended that outside consultants help refine analysis. □

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We used WebFOCUS."

"We [illegible] and EDA [illegible] to publish [illegible] schedules from multiple dynamic databases."

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Managing Director of
Information Services, RENFE

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[illegible] Information Builders' WebFOCUS [illegible]ine and EDA middleware, [illegible]es up to the minute train [illegible]d on live, dynamic data from [illegible]s. Anyone with a standard [illegible]n determine exactly when any [illegible] system will arrive at or depart from any destination... even if the train encounters unexpected delays. All it takes are a few simple menu picks to launch a query. The new system has virtually eliminated the expense of creating and maintaining over 6,000 pages of static train timetables. And the thousands of hits on their Web site has produced valuable marketing demographics as an added bonus.

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Keeping tabs on stress

CONTINUED FROM PAGE 43

and a new online service that lets managers create consistent job reviews with clear job feedback for beleaguered employees.

The options are prompted by the current shortage in professional skills across the country, especially among IT workers. Jobs that go unfilled leave the remaining staff to shoulder a heavier workload, which can hurt productivity or lead employees to leave the company [CW, April 13].

So when Al Brault revamped the human resources organization at the University of Rochester, he wanted to give his 65 staffers a chance to voice concerns. Getting feedback was especially important because a human resources department doesn't have anywhere to go to air grievances, unlike other departments, said Brault, who is human resources director at the Rochester, N.Y., school.

He turned to Pulse, an anonymous E-mail service offered by Valour, Inc. in Ithaca, N.Y., to poll employees weekly to let them rate their overall satisfaction and raise concerns. The service costs $15 per employee per month.

GETTING MORE INPUT

"With all the changes that were going to be made, Pulse was an attractive option for me," Brault said. "A vehicle like this provides employees an opportunity to communicate some things they usually would not say in other venues."

"I use Pulse as an early warning system," said Moshe Mor, CEO of SPL WorldGroup in San Francisco.

"I want to use technology to create an informal communication mechanism for employees, even though we are growing rapidly," Mor said.

The plan works better than annual paper-based employee surveys because "by the time we found out about employee issues, it was already too late," Mor added.

But "management has to be committed to listen to this. You have to be prepared to hear both good news and bad news and take action on it," said Bob Felton, CEO of Indus International, Inc., a Pulse subscriber in San Francisco.

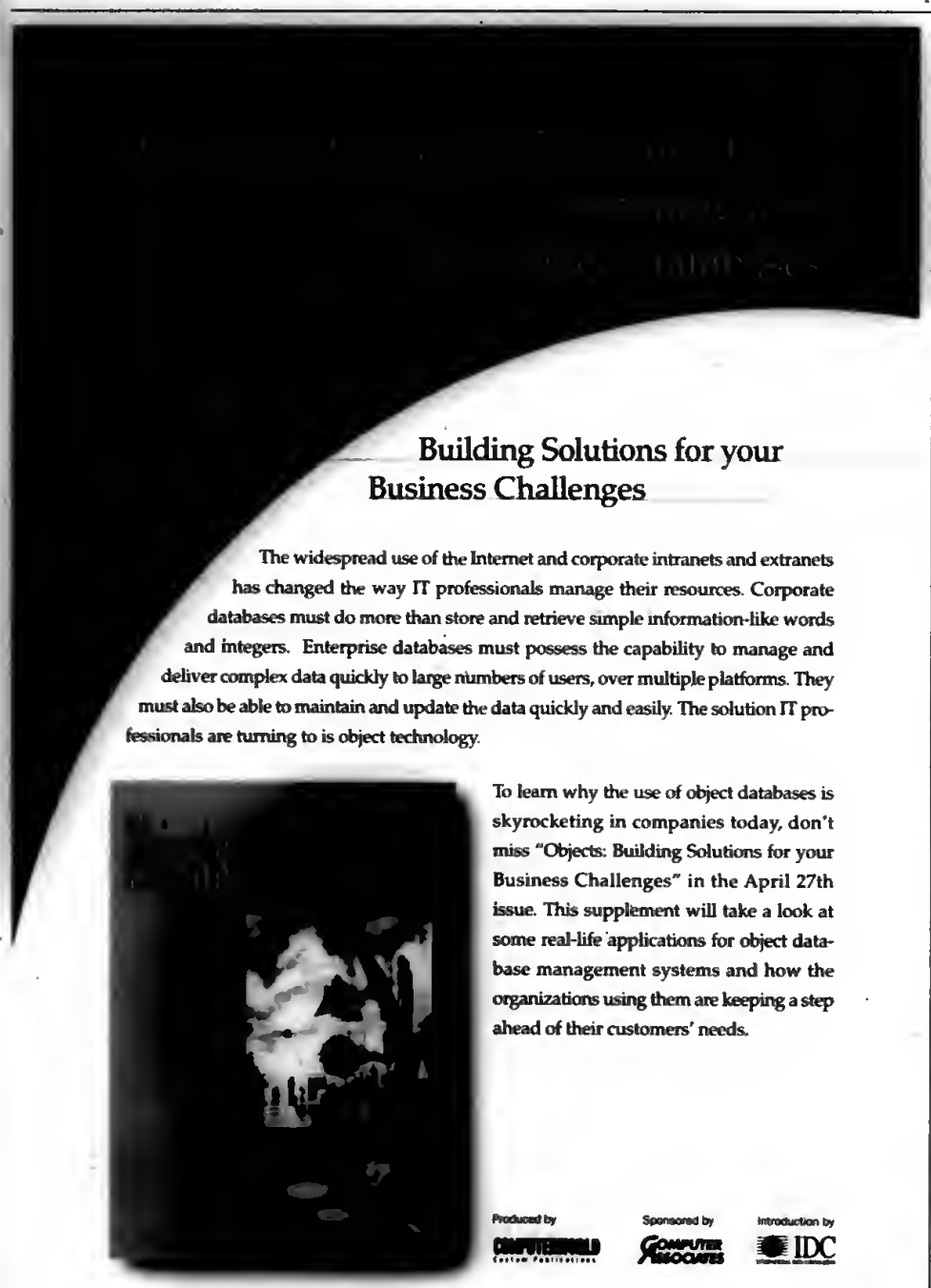
A CLEAR PICTURE

Also, management has to paint a clear and consistent picture for employees, observers said. That's why Strategic Resource Solutions Corp. (SRS) chose Knowledgepoint, Inc.'s new Performance Now Internet Service, being announced this week. Knowledgepoint, based in Petaluma, Calif., already offers a version of the software for corporate networks.

The service lets SRS provide employees at offices around the country with consistent manager feedback and communications on their job performance, said Gary Bossert, a human resources specialist at the Cary, N.C.-based facilities and energy management firm.

Performance Now creates a custom World Wide Web site for managers to access and write job reviews based on standard ratings and criteria. The site also will provide standard language for each review so managers have a consistent model to follow.

Performance Now has allowed one SRS manager, who oversees an employee at a separate site, to conduct reviews without going to the remote office — while letting the worker feel part of the group and not isolated, Bossert said. □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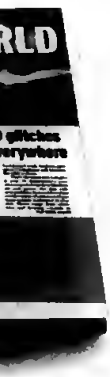

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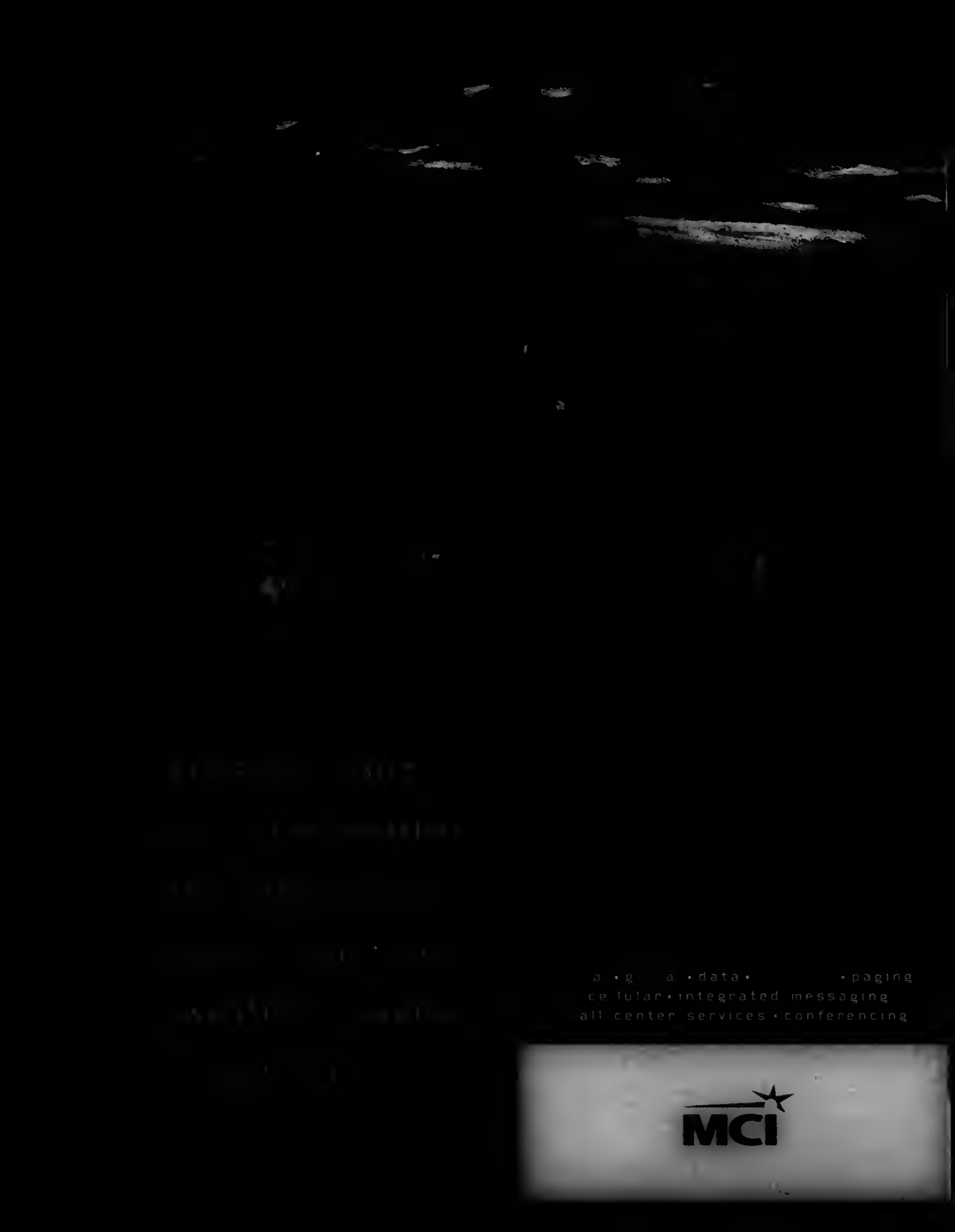
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The Internet

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Briefs

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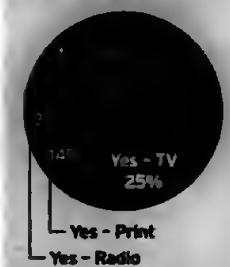
'NET TIME

Does Internet use affect time spent with other media?



Basis: Survey of more than 16,000 Internet users

[redacted]

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▸ *Pokey.org case brings dispute process to forefront*

By Sharon Machlis

THE TOY COMPANY VS. the 12-year-old.

Prema Toy Co.'s efforts to retrieve rights to the pokey.org domain name from Christopher Van Allen of Pennsylvania is inflaming passions across the Internet.

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But along with the high-profile splash of a kid saying he is being picked on by a toymaker is renewed focus on the tricky nature of World Wide Web domain name disputes and how they are resolved.

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Name fight, page 52

Protocol may smooth workflow

By Carol Sliwa

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User companies currently have to write their own code to make disparate workflow applications work together. With the Simple Workflow Access Protocol (SWAP), Netscape Communications Corp., Hewlett-Packard

Workflow, page 53

No more waiting at the post office

▸ *Companies to test online postage sales*

By Matt Hamblen

THE U.S. POSTAL SERVICE recently approved beta tests of technology that allows users to buy postage over the Internet. The technology is aimed at small businesses but could prove valuable to large companies as well.

The process works this way: A business or individual that wants to buy stamps purchases them by credit card, check or electronic funds transfer from a World Wide Web site, and the virtual postage is downloaded to a small device attached to any PC parallel port with a printer. Then, after users compose a letter, they can use E-Stamp software to address and stamp it.

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E-stamp, page 54

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UPS	13.20
Wall Street Journal	14.06
Hewlett-Packard	14.46

Best areas for Web surfing	
Milwaukee	13.06
Denver	14.42
Pittsburgh	15.63
Worst areas for Web surfing	
Washington	59.05
Philadelphia	33.50
Minneapolis/St. Paul	32.23

[redacted]

The Internet

Electronic Commerce • The World Wide Web • Intranets

Briefs

Bandwidth reducer

An Internet standards body has proposed adopting specifications for what it calls "TV-like multimedia presentations" on the World Wide Web. The Synchronized Multimedia Integration Language (SMIL) reduces the bandwidth for television-like content and allows synchronization for commands such as "play audio file 'A' in parallel with video file 'B,'" according to the World Wide Web Consortium (www.w3.org).

The SMIL spec, which is based on Extensible Markup Language, now goes before the consortium's members for a final vote.

Setting up shop, free

Businesses can create their own Internet shops without buying any Web development software, officials at ICat Corp. in Seattle announced last week. ICat Commerce Online lets companies use an Internet browser at www.icat.com to develop an electronic-commerce site.

Usage is free for small stores with 10 items or fewer; larger stores must pay $49 to $349 per month, depending on the number of items for sale. No per-transaction fees are charged. Banner ads, discussion groups, news feeds and other services will be offered by ICat's business partners.

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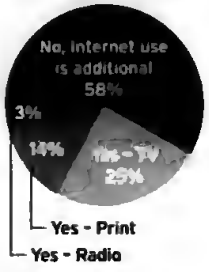

Base: Survey of more than 16,000 Internet users

Source: WebCrawler (www.webcrawler.com) survey by Hambrecht & Quist LLC, San Francisco, and LinkExchange, Inc., San Francisco

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Philadelphia	33.50
Minneapolis/St. Paul	32.23

Source: Keynote Systems, Inc., San Mateo, Calif. (www.keynote.com)

Might makes right in name fight

CONTINUED FROM PAGE 51

point to his page, including one in Tonga, a South Pacific nation with the .to domain. Van Allen claims to have received more than 3,000 messages of support.

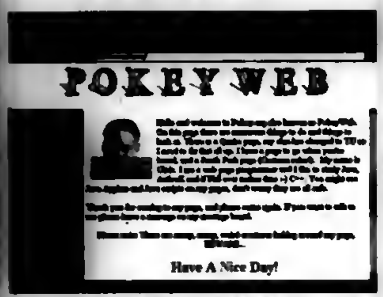
The publicity flap started in part with a message on an Internet mailing list that has been following the general issue of domain name disputes, according to Ian Ballon, an attorney at Finnigan, Henderson Farabow, Garrett and Dunner in Palo Alto, Calif., who represents Prema.

"Many people on that list are strong critics of [Network Solutions' policy]," Ballon said. "Without intending to, we walked into it."

Prema offered Van Allen a free license to use the pokey.org domain if rights were returned to the toy company, an offer Van Allen rejected because he said the name is his.

But critics said most individuals faced with legal action have no choice but to surrender. One attorney who handles such cases said litigation costs can run about $150,000.

Of the 1.5 million domain names registered with Network Solutions, there have been 1,200 disputes and 40 lawsuits, the company said.



Christopher Van Allen refuses to give up the pokey.org domain name, which he uses as a personal Web site

Network Solutions is constantly looking at its Internet policies in light of changing events, according to David Graves, the company's director of business affairs. However, he said, the current policy is the same for the Internet as anywhere else. If someone is challenged about improper use of a trademark, he must defend his actions. "This is no different," Graves said. "People feel we should ignore the situation. We can't."

Jenni Baier, webmaster at Computer Integration, Inc. in Harmon, Ill., and a vocal Van Allen supporter on the Web, said she doesn't disagree with the basic policy, but it needs additions. "I see a world of difference between the pokey.org situation and a situation where a domain name speculator or someone registering a competitor's marks or names is involved," she said.

Ballon acknowledged a fundamental tension between trademarks, which are granted for narrow uses in a single country, and the Internet, which is global and far-reaching. The Clinton administration's proposal for a new domain name registration system recognizes that tension by seeking an international mechanism for resolving disputes, he said.

"I think we are going to have to either make a decision as public policy that domain names are not trademark use . . . or set up some procedure, an inexpensive forum for determining these things," said G. Gervaise Davis III, senior partner at Davis & Schroeder in Monterey, Calif. Davis has handled dozens of domain name cases but isn't involved in pokey.org.

A proposal to add more top-level domain names, such as .firm and .store, won't ease the situation; it will exacerbate it, Davis said. "All it does is create more cases. It does not go away." □

Protocol may smooth workflow processes

CONTINUED FROM PAGE 51

Co., Sun Microsystems, Inc. and 20 other vendors hope to enable workflow products to start, stop and control processes with other workflow systems that use the Hypertext Transfer Protocol (HTTP).

Proponents envision an extranet scenario in which a purchase request could be routed through the approval process among several partners that don't use the same workflow or enterprise resource planning (ERP) applications.

"That's the easy part — agreeing on the data elements and being able to pass them between programs," said Daniel Rasmus, an analyst at Cambridge, Mass.-based Giga Information Group.

The bigger problem is getting workflow vendors' modeling tools — which let users draw the flow of the process — to work together, he said. "[SWAP] isn't going to help the businesspeople figure out how to do those models," Rasmus said.

PICKING A STANDARDS BODY

SWAP backers said they were looking for a lightweight protocol to address interoperability issues.

The vendors plan to form a working group within 30 days to decide which standards body they will pursue, Netscape product manager Krishnan Naparajan said. Standards bodies under consideration include the World Wide Web Consortium and the Internet Engineering Task Force.

SWAP builds upon the object model of another proposal, called JFlow, that was created by the Workflow Management Coalition. The JFlow proposal has been submitted to the Object Management Group to be standardized.

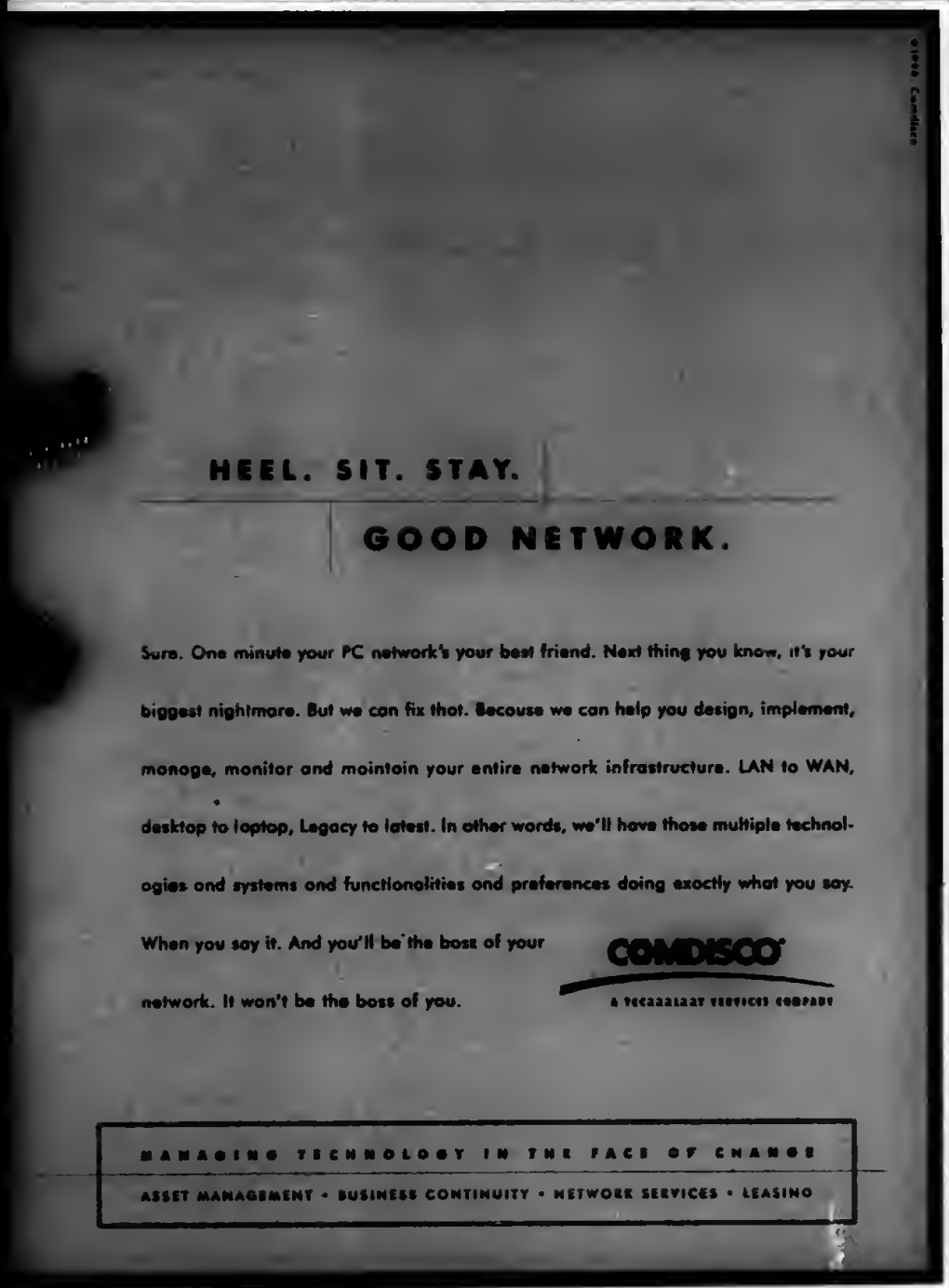
JFlow relies on the Internet Inter-ORB Protocol, but many companies don't have the necessary Common Object Request Broker Architecture to take advantage of it, Naparajan said. "Most have an HTTP infrastructure," he said.

Although the HTTP-oriented proposal might be more realistic and deliverable, end-user companies shouldn't expect to see SWAP's benefits any time soon, said David Yockelson, an analyst at Stamford, Conn.-based Meta Group, Inc.

SWAP not only has to go through the standardization process, but it also has to be incorporated into products. "I would be pleasantly surprised if we see anything delivered from the vendors in a year and a half," Yockelson said.

Other companies on board with the proposal include Action Technologies, FileNet Corp., Lawson Software, Sybase, Inc. and Tibco, Inc.

Yockelson noted the conspicuous absence of ERP vendors such as PeopleSoft, Inc., SAP AG and Oracle Corp. Naparajan said SWAP proponents hope to get those companies on board. □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NEW PRODUCT

WEBTRENDS CORP. has announced Version 2.0 of WebTrends Enterprise Suite, a set of webmaster tools for site management and traffic analysis.

According to the Portland, Ore., company, the suite comprises a Traffic and Log Analysis cartridge, a Proxy Server, an Analysis cartridge, a Link Analysis and Quality Control cartridge, and a Monitoring and Alerting cartridge.

WebTrends Enterprise Suite 2.0 costs $499.

WebTrends
(503) 294-7025
www.webtrends.com

Companies to test E-stamp technology

CONTINUED FROM PAGE 51

other vendors to be approved for testing as well.

The uniqueness of each stamp might be an important feature for large businesses because it would enable them to track letters with a scanner in a way similar to what some package delivery companies do. However, the unique imprints actually were designed to prevent counterfeits, Gilbert said..

Security is clearly a concern of the Postal Service in using the new technology; public and private keys will be used to unlock the encrypted postage software. But mechanical and electronic meters are also subject to tampering and theft, Gilbert said.

E-Stamp officials said if the test works well for homes and small businesses, the next step will be to enable networked PCs to print stamps from one E-Stamp device.

Gilbert predicted that many small businesses will warm up to the concept because they won't need a meter and will be able to avoid waiting in lines to buy postage. "There are a significant number of people who do business at their PCs, and it's a marketplace that's [not] covered by us so far," he said.

E-Stamp will charge $199 for hardware and software, plus a surcharge of 10% on top of the cost of a stamp transaction, a company spokeswoman said.

Pitney-Bowes, Inc. in Stamford, Conn., and NeoPost in Hayward, Calif., plan to test similar products, analysts said. □

NEW PRODUCTS

WEBMETHODS, INC. has announced the B2B Integration Server, which is Extensible Markup Language-based software that enables data exchange among applications, World Wide Web sites and legacy data sources.

According to officials at the Fairfax, Calif., company, the communications interface software integrates on both the client and server sides with applications developed in Java, JavaScript, C, C++, Visual Basic and Active X.

B2B Integration Server lets companies host and publish a set of business services — such as "place order" or "track shipment"— that allow application-to-application exchange of data via the Web.

Pricing begins at $12,995 for five concurrent users and five developer licenses.

WebMethods
(703) 352-8501
www.webmethods.com

IPSWITCH, INC. has announced Version 5.0 of WS_FTP Pro, a file transfer utility for Windows.

According to officials at the Lexington, Mass.-based company, the graphical File Transfer Protocol (FTP) client now provides an optional Microsoft Corp. Windows Explorer interface. Files can be transferred from a local directory across the Internet to a remote FTP site with a drag-and-drop command.

WS_FTP Pro has enhanced support for host and firewall types and lets users store "session properties," which automate the process of logging on to frequently visited remote sites.

The file transfer utility costs $37.50

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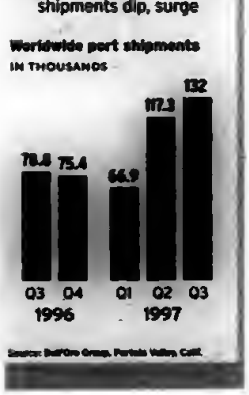
Briefs

Glad about FRADs
Frame relay access device shipments dip, surge



Computer crime costs on the rise

FBI tallies last year's losses at $137 million

By Laura DiDio

THE COST OF computer crime is rising, and U.S. companies range from clued-in to clueless about what to do about it.

A recent survey of 250 businesses jointly conducted by the Computer Security Institute, Inc. in San Francisco and the FBI found that the dollar value losses resulting from computer crimes (including internal and external hacks) totaled $137 million last year, compared with about $100 million in 1996, a rise of 37%.

Users also reported that the average losses from theft of proprietary company information leaped 68%, from approximately $955,000 in 1996 to about $1.68 million last year.

Ed Ehrgott, director of internal audit at Charles Schwab & Co. in San Francisco, is one of those clued-in about security.

Charles Schwab's Ed Ehrg... says his company compi... trails of evidence

Ehrgott has about 15 security staffers and is constantly trying to hire more, with his chief information officer's blessing.

The discount brokerage handles more than $400 billion in assets in 4 million active customer accounts worldwide.

And unlike many businesses, which hesitate to report incidents for fear publicity will draw more attacks, Charles Schwab actively works with law enforcement agencies.

"We have a fraud unit that consists of about 20 IT security people who constantly assess and monitor network traffic operations both internally and ex-

Crime costs, page 56

Cisco aims to ease IP management

By Bob Wallace

CISCO SYSTEMS, INC. last week confirmed that it intends to license technology that would add meat to the bones of its plan to let users allocate network resources more efficiently.

A Cisco spokeswoman said the company will announce this week that it plans to license Dynamic Host Configuration Protocol (DHCP) and Domain Name Server (DNS) technology, but she wouldn't name the vendor that will supply it.

The technology will become part of Cisco's CiscoAssure Policy Networking scheme, which was designed to let information systems managers create special instructions that govern how the corporate network is used.

For example, one could specify that only the engineering department use the network during certain hours or that traffic from SAP AG applications should get top priority for bandwidth.

PUTTING IT TOGETHER

Key new components of Cisco's policy networking plan:

Dynamic Host Configuration Protocol: Software that enables a server to "lease" IP addresses to clients for a specified period

Domain Name Server: Software that "binds" users with IP addresses in a directory

Benefits: Greatly eases administration of IP networks by automating the provisioning of IP addresses and by simplifying the way users access networks

DNS and DHCP make it easier to assign and track user addresses, and therefore make it easier to tie access privileges to individuals or groups.

DHCP server software can "lease" out IP addresses to clients for a specified period of

Cisco, page 56

Internet E-mail service means no maintenance

By Barb Cole-Gomolski

FEW COMPANIES want to outsource E-mail completely, yet many are intrigued by the idea of letting someone else hook their corporate E-mail system to the Internet.

INTERNET E-MAIL

That's what a new service from The Electric Mail Co. in Vancouver, British Columbia, is all about.

Electric InterConnect links Lotus Development Corp. CC:Mail and Microsoft Corp. Mail systems to the Internet. The company said the service will support Lotus Notes, Microsoft Exchange and Novell, Inc. GroupWise later this year.

Using a service such as Electric InterConnect eliminates the need to maintain Simple Mail Transfer Protocol (SMTP) gateways, which are notoriously unreliable, according to users. Instead, mail is sent to Electric Connect's central server, which sends it via Internet to a mail server within a company's network at set intervals. Users don't need special E-mail addresses because Electric Mail can maintain a company's mail server domain (*mail@company.com*, for example) on its own server.

"[Electronic InterConnect] allowed me to deliver Internet mail [connectivity] to our desktops with no capital investment and no administration," said John Wilson, information systems manager at Clark, Richardson & Biskup, an engineering firm in Kansas City, Mo.

Previously, the firm used a similar service from Fabrik Communication, Inc. in San Francisco to connect its Microsoft Mail system to the Internet. But Wilson said he prefers

Internet mail, page 56

The Enterprise Network

LANs • WANs • Network Management

Briefs

Managing IP nets

Xylan Corp. last week announced that it plans to add software to its switch operating system that will ease the administration and management of IP networks. The software, made by Quadritek Systems, Inc. in Malvern, Pa., will support Dynamic Host Configuration Protocol and Domain Name Server. Xylan expects to ship products in the fourth quarter.

Who's at your PC?

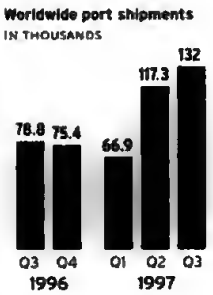
Ensure Technologies, Inc. in Ann Arbor, Mich., last week introduced XyLoc, a combination hardware/software system that safeguards PCs and workstations from internal hacking. It uses a two-way wireless radio frequency technology that continuously monitors desktop machines for the presence or absence of authorized users. XyLoc unlocks the machine only for authorized users. It supports 386 PCs and higher. The company said XyLoc will ship in May with a $179 list price.

NT security package

RSA Data Security, Inc. in Redwood City, Calif., and Edify Corp. in Santa Clara, Calif., have announced that RSA will incorporate its key encryption software into Edify's product to automate communications between a business and its customers.

Glad about FRADs

Frame relay access device shipments dip, surge



Source: Dell'Oro Group, Portola Valley, Calif.

Computer crime costs on the rise

FBI tallies last year's losses at $137 million

By Laura DiDio

THE COST OF computer crime is rising, and US companies range from clued-in to clueless about what to do about it.

A recent survey of 250 businesses jointly conducted by the Computer Security Institute, Inc. in San Francisco and the FBI found that the dollar value losses resulting from computer crimes (including internal and external hacks) totaled $137 million last year, compared with about $100 million in 1996, a rise of 37%.

Users also reported that the average losses from theft of proprietary company information leaped 68%, from approximately $955,000 in 1996 to about $1.68 million last year.

Ed Ehrgott, director of internal audit at Charles Schwab & Co. in San Francisco, is one of those clued-in about security.

Charles Schwab's Ed Ehrgott says his company compiles trails of evidence.

Ehrgott has about 15 security staffers and is constantly trying to hire more, with his chief information officer's blessing.

The discount brokerage handles more than $400 billion in assets in 4 million active customer accounts worldwide.

And unlike many businesses, which hesitate to report incidents for fear publicity will draw more attacks, Charles Schwab actively works with law enforcement agencies.

"We have a fraud unit that consists of about 20 IT security people who constantly assess and monitor network traffic operations both internally and ex-

Crime costs, page 56

Cisco aims to ease IP management

By Bob Wallace

CISCO SYSTEMS, INC last week confirmed that it intends to license technology that would add meat to the bones of its plan to let users allocate network resources more efficiently.

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Internet mail, page 56

Internet E-mail service: no maintenance

CONTINUED FROM PAGE 55

Electric InterConnect's flat-rate pricing to Fabrik's per-message charges. "When they are charging by the message, one month it can be $200, and the next month it may be $2,000," he said. "That makes it hard to predict what your [messaging] costs will be."

In addition to The Electric Mail Co. and Fabrik, Allegro in Dayton, Ohio, offers similar SMTP services. Gary Rowe, a principal at Rapport Communication in Atlanta, said such services are attractive to many companies. "Few people want to manage all those nasty [Internet mail] gateways, but they need the broad connectivity to their partners and customers," he said.

Electric InterConnect will cost about $300 for an initial setup fee, plus about $85 per month for a post office and $1.50 per user. That includes 50 hours of connect time and 200M bytes of file transfer. Companies that exceed that will be charged an extra 40 cents per megabyte, plus $2 per hour for connect time.

The biggest roadblock to using a third-party Internet mail gateway is the lack of control over the system, Rowe said.

Harry Tom, messaging manager at American International Group, Inc., an insurance company in New York, agreed. "If you outsource your SMTP traffic, you basically have to accept the level of service that you get," he said. "If you maintain your own SMTP gateway, you can fine-tune it. But that also means you have to have the expertise in-house to do that."

Some companies, such as Castrol, Inc. in Wayne, N.J., turn to outsourcers because they don't wish to devote their resources to keeping an SMTP connection up and running.

"We have the IS resources to do that, but we didn't feel it was a high enough priority," said Dave Veninger, manager of information technology at the automotive division of Castrol. The unit has been using Fabrik's service to tie its Lotus Notes network to the Internet. □

Outsourcing Internet mail connectivity

Pros:
- May eliminate the need for a firewall
- Frees IS from having to manage an SMTP gateway
- Can be used to pass messages among different E-mail systems

Cons:
- Sending a lot of attachments can increase costs
- Services such as virus scanning cost extra

Cisco to ease IP administration

CONTINUED FROM PAGE 55

time. Using it is easier than manually assigning permanent addresses to each machine.

DNS software "binds" user names with IP addresses in a directory to let users search for one another by name, rather than IP address.

AUTOMATION

"It's far easier to use a server to automate the assignment of IP addresses than installing them manually in everyone's computer," said Bill Horst, network manager at the U.S. General Services Administration in Boston. "It's unwieldy at best for network managers to assign IP addresses themselves. It's tough to keep up."

Yamaha Corporation of America uses DHCP and DNS together on a server in its corporate network.

"When a user wants on to the network, the server looks up their name, validates them and assigns them an IP address for [the] session," said Edward Leard, general manager of information systems at Yamaha in Buena Park, Calif.

"With [DNS and DHCP] I don't have to worry about providing access based on huge lists of IP addresses; I can just have every user with a domain name given network access. That simplifies things immensely," he added.

Cisco wouldn't say when the DHCP and DNS software will be available.

The vendor last month said it will deliver CiscoAssure components such as software add-ons, a graphical user interface, policy servers and an enhanced management program starting in the second half of the year. □

Computer crime costs are rising steadily

CONTINUED FROM PAGE 55

ternally, checking on traffic, usage and audit trails. In the event the worst happens and we get hit, we're ready with a trail of evidence to turn over to the proper authorities," Ehrgott said. Still, not all companies are willing to work that hard to limit their vulnerability, experts said.

"Risk is what companies must live with when they only allocate limited monies and resources for network security. And [corporations that do that] have to hope they can live with the threat," said John Davis, director of the National Computer Security Center at the National Security Agency in Baltimore, who spoke at the recent (Sen.) Sam Nunn Policy Forum on Security in Atlanta.

Being specific about the threats that face an organization is the best way to get the attention of managers who can approve spending on security, according to users at the Nunn conference.

Christine Snyder, a vice president at Price Waterhouse LLP, in Baltimore, said she considers the biggest security threat to be from company insiders. So she and her staff work hard to enforce security policies and educate managers and end users. Her staff issues booklets and updates on company policies and the penalties users can incur for breaking the rules — including dismissal. "As far as I'm concerned, there are no lasting technical solutions to social problems," Snyder said.

One security manager, who asked not to be identified, resorted to scare tactics to get a bigger security budget. He compiled a list of all potential network vulnerabilities with an itemized list of each device and network operating system.

"I was able to show my CIO that even a simple network outage would require two to three network administrators at least two hours to fix and cost us about $10,000," said the security manager, who works for a West Coast manufacturing company with 30,000 users. "A severe network security breach — one that made us lose data and suffer an outage of one to three days — could run into the millions. That made the extra $75,000 I was asking for look like a pretty good investment. I got the money."

There are signs that corporate America is starting to get more serious about security, albeit slowly. Another recent Computer Security Institute study showed that nearly 60% of companies surveyed plan to increase their information security budgets in the next 12 months. The same survey found that security averages just 1% to 3% of the overall IS budget. □

NEW PRODUCTS

KINGSTON TECHNOLOGY CO. has announced a line of TX Workgroup Hubs, two new 100M bit/sec. hubs designed for small offices.

According to the Fountain Valley, Calif., company, the hubs help small businesses eliminate the need for dedicated peripherals at each workstation by allowing users to share resources. They include a universal power supply, a diagnostic LED for troubleshooting and a cross-over switch for straight-through cable wiring.

The four-port TX Workgroup Hub costs $229, and the eight-port version is priced at $389.

Kingston Technology
(714) 435-2600
www.kingston.com

TELCO RESEARCH CORP. has announced Tru Radius Accountant 2.0, a tool designed to track remote user Internet calls for bill-back, budgeting and network policy enforcement.

According to the Nashville company, the Windows-based application will work for all routers and firewalls that comply with the Radius standard for remote dial-in authentication.

Tru Radius monitors network usage by mobile and home users and reports on specific user activities such as E-mail usage, World Wide Web browsing and file transfers. It also can be used to identify potential fraud such as simultaneous log-ins.

Pricing for the application starts at $2,495.

Telco Research
(615) 872-9000
www.telcores.com

BARDON DATA SYSTEMS has announced Full Control, security access control software for Windows 95-based desktops, laptops and networks.

According to the Albany, Calif., company, the software allows administrators to set up user-specific parameters such as time limits, password protected programs, World Wide Web-browser usage tracking, remote administration and configuration locking.

Full Control can track exactly when each program was run, by whom and for how long and report on attempts to access locked files, attempts at password hacking or the number of pages printed per workstation.

The price is $49.95 per copy.

Bardon Data Systems
(510) 526-8470
www.bardon.com

Software

Datebases • Development • Operating Systems

Briefs

Worldwide market for customer service/ support applications

1997 $290M

2002 $1.7B*

* Projected

Source: Dataquest, San Jose, Calif.

SAP for traders

SAP AG is creating an R/3 system for international trading companies. Its functions include agency processing, direct shipping and settlement transactions and foreign trade. The system was developed in Japan with large trading companies such as Itochu International, Inc. and Marubeni Corp. It is expected to be released by June.

NT data marts

MineShare, Inc., a start-up in Santa Monica, Calif., last week released end-to-end data mart software that runs on Windows NT servers and supports multidimensional analysis of relational data. The MineShare Suite includes tools for building and managing data marts, plus end-user software for analyzing the information and creating reports that can be distributed to other users. Pricing starts at $125,000 for the entire suite, although MineShare said the products can also be bought separately.

Reports via intranet

Influence Software, Inc., a maker of Java-based data analysis tools in Sunnyvale, Calif., last week announced a central repository for corporate reports that can be distributed via intranets to end users with World Wide Web browsers. The Knowledge Gallery software works with Influence's Aporte query and reporting products and includes a search engine for finding reports and a scheduler that automates information gathering and distribution. Pricing starts at $10,000 per server, plus $100 for each concurrent user.

ORDER TRACKING

Carriers plug in to R/3, others

By Randy Weston

PACKAGE CARRIERS are getting into the software business and looking to plug in to your order entry system.

German software giant SAP AG, with U.S. headquarters in Wayne, Pa., is teaming up with Memphis-based Federal Express Corp. to develop logistics and transportation management software specifically for R/3.

United Parcel Service of America, Inc. has a similar agreement with PeopleSoft, Inc. in Pleasanton, Calif.

In FedEx's case, the initial software module is FedEx's package-tracking software with a nifty interface to R/3's order-

Carriers, page 60

Pick an app, any app

▸ *Wholesaler ties best-of-breed software in divisions to R/3 at headquarters*

By Randy Weston

MCKESSON CORP. is bucking conventional wisdom and betting its operations on a mix of packaged applications rather than a single integrated system.

But that doesn't mean the $18 billion medical supply wholeseller is ignoring the benefits of a single integrated system. The company still plans to feed data from all its divisions into a single corporate system, even if the divisions use different applications.

The San Francisco-based firm plans to use data conversion tools as middleware to keep information flowing among its patchwork quilt of systems.

The company is implementing German giant SAP AG's R/3 financial systems and Pleasanton, Calif.-based PeopleSoft, Inc.'s human resources modules. It also has custom mainframe and AS/400 applications for some processes such as warehouse management operations and is implementing Redwood Shores, Calif.-based Oracle Corp.'s Consumer Packaged Goods applications for all operations at McKesson division General Medical Corp.

"We have a number of subsidiaries, and whenever we do something like this, we do whatever is right to optimize operations at the subsidiary and [don't] force technology on them," said Catmine Villani, McKesson's chief information officer. He said the company's culture is to let each division decide what technology is best for its operations.

For example, corporate headquarters runs R/3 financial systems, but some subsidiaries use legacy systems or, in the case of General Medical, Oracle's financials. Yet everything feeds into one R/3 general-ledger application.

So sales data for a drug General Medical distributes would flow from the Oracle application package, be translated into an

McKesson, page 60

Company: McKesson Corp., San Francisco

Founded: 1833

1997 revenue: $18 billion

Employees: 13,000

Business: Fortune 100 wholeseller and distributor of medical supplies and pharmaceuticals

Divisions: U.S. Health Care and its Canadian subsidiary, Medis Health and Pharmaceutical Services, Inc.; and a minority interest in Mexico's Nadro, S.A. Recently acquired General Medical Corp. and owns bottled-water distribution firm McKesson Water Products Co.

Project: Migrating to disparate client/server applications and tying them together with middleware and data conversion applications

WHAT'S NEW AT INFORMIX

Dynamic Server 7.3

- Transaction performance boosted by 20% or more
- Database can remain in use while changes are made
- Common management tool for Unix and Windows NT
- Support added for SQL syntax used by Oracle

Advanced Decision Support Option

- Feature parity on Unix and NT
- Expanded support for data indexing techniques
- Partitioning and query optimization enhancements

Pricing

- Starts at $1,500 per concurrent user

Informix delivers on time

▸ *Database upgrade is encouraging, users say*

By Craig Stedman

IT MAY NOT qualify as a giant leap for mankind, but Informix Corp.'s release of a database upgrade is seen by users as a small step forward for the beleaguered vendor.

Informix this month shipped a promised revision of its flagship Dynamic Server software with zippier throughput and other new features (see chart above). Other than a late 1997 product repackaging, this is Informix's first database release since a financial meltdown early last year forced it to restate earnings back to 1994.

Several users who are counting on Informix to be there for their businesses said they were encouraged that the Menlo

Informix, page 60

IBM works to combine VisualAge tools

By Sharon Gaudin

CORPORATE PROGRAMMERS using IBM's development tools may need less spit and gum to stitch together their applications — regardless of what language they use — next year.

IBM is melding its VisualAge tools together into a tightly knit development environment. By the end of next year, company executives hope to have development environments integrated so well that programmers will work on the coding and then decide which language they want it to generate.

IBM, page 60

Plans for IBM's VisualAge tools:

- A Universal Virtual Machine is being added to VisualAge for Java and VisualAge for Smalltalk
- Java and Smalltalk tools will get a common development environment
- VisualAge for Smalltalk will get support for IBM's Component Broker middleware
- Component Broker will provide interoperability between VisualAge for Java and VisualAge for for C++

S, M, L, XL, XXL.

Microsoft® Windows NT® Workstation gives everyone in your company what they need to work with. No more. No less.

With its flexible manageability, you can configure, customize, and lock down every Windows NT Workstation in your company right from your own desktop. Your high-end users get the multiple applications and flexible configurations they need. The troops get exactly the applications they need. And you get the control you need.

That's smart management. And it's good economics. A recent analyst report states that locked-down PCs running Windows NT Workstation offer a cost of ownership 35% lower than loosely managed PCs running Windows® 95—and even less than that of network computers. Yet as your costs drop, your end users move up to the speed, reliability, and security of Windows NT.

Visit us online and check out the Windows NT Workstation Zero Administration Kit. You'll see why Windows NT Workstation has become the compelling choice for every new desktop in your organization.

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Windows NT®
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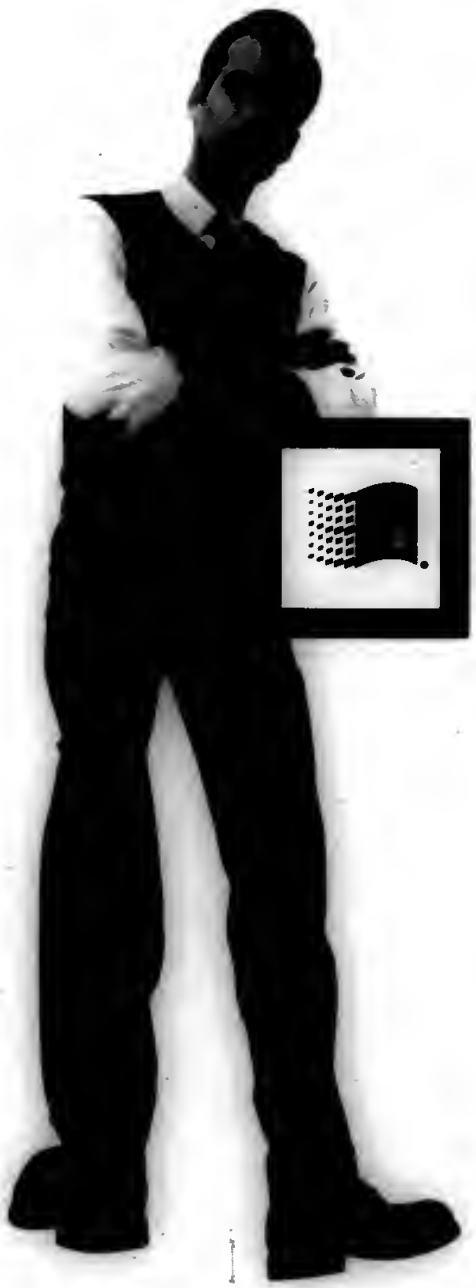

www.microsoft.com/windows/nt_workstation/ Where do you want to go today?® Microsoft®

McKesson mixes, matches apps

CONTINUED FROM PAGE 57

R/3-compatible format and move into the R/3 general-ledger application.

McKesson uses data conversion systems from OnDisplay, Inc. in San Ramon, Calif. OnDisplay's CenterStage can be used one time to reformat data from an old system to the proper format for a new system, or it can be used as middleware to convert data among systems on the fly.

Villani said his company uses CenterStage to move data from legacy systems to the new PeopleSoft, Oracle and SAP systems and to move old data that isn't year 2000-compliant to new databases that are ready for the millennium. The tools also will come in handy as McKesson acquires other companies and needs to convert the company's customer, product and financial information to McKesson's format.

Once the migration and year 2000 moves are complete, the company will use CenterStage as middleware that will translate data flowing among the disparate systems such as the Oracle Consumer Packaged Goods application and corporate R/3 financial system.

BIG SAVINGS

McKesson is seeing significant cost savings from CenterStage. The company would have spent 10 times more to convert the data manually, Villani said. He wouldn't release the exact cost of the project, but he said the manual conversion would cost $200,000 to $500,000, depending on the size of the project.

The tools also save time: up to 70%.

"We are talking about doing the conversion in days as opposed to weeks, and on larger projects, months," Villani said.

Brian Murphy, an analyst at The Yankee Group in Boston, said many users are looking at diversified packaged applications. And for those users, such conversion software comes in handy to integrate the systems. But he warned that users need to thoroughly test the systems to make sure the response time and throughput is acceptable because the conversion may slow processes that need to happen immediately. □

HOOKING UP

ERP and supply-chain software vendors that are linked to package carriers:

Vendor	Carrier
SAP	FedEx
PeopleSoft	UPS
Metasys	Skyway Concerto, FDX Corp.'s Caliber Logistics, CTMS and McKaye
Logility	American Freightways, Central Freightlines, UPS

Carriers plug in to R/3, other packages

CONTINUED FROM PAGE 57

entry system, analysts said. But FedEx said industrial-strength capabilities will be added later.

The software will send an order from a customer's R/3 system to the FedEx tracking system and will automatically generate accurate shipping information, such as cost, weight, shipping label and tracking number. That means customers don't have to manually load the data.

The FedEx/SAP software will be more powerful when it gets import and export document processing and dynamic routing, said Tim Harmon, an analyst at Meta Group, Inc. in Stamford, Conn.

Most companies won't be able to take advantage of the software until multiple carriers have deals with multiple enterprise resource planning (ERP) vendors, Harmon said.

"There are a few companies which outsource some or all of their distribution and transportation to FedEx, and for them it's pretty cool," Harmon said. "But most companies utilize multiple carriers and multiple modes, and they'll still continue to utilize transportation management application packages."

Those include packages from Metasys, Inc. in Charlotte, N.C.; Logility, Inc. in Atlanta; and I2 Technologies, Inc. in Irving, Texas (see chart above).

The FedEx/SAP product, which has yet to be named or priced, will be available for general use in June. UPS's PeopleSoft product will be available by summer. □

IBM seeks to meld together VisualAge tools

CONTINUED FROM PAGE 57

"That would be ideal," said Frank Pollard, chief information officer of AllState Insurance Co., based in Northbrook, Ill. "We are rewriting our legacy systems, so it would be wonderful to have multiple languages work together."

By integrating C++, Java and Smalltalk languages, developers can get disparate applications to work together with fewer wires and headaches.

"We're tailoring and wrapping all across the VisualAge family," said Valerie Olague, application development marketing manager at IBM.

"One portion of a development team wants to work in a specific language or tool, and another part of the team wants to work in another. At the end of the day, their applications should work together. That's what we're looking for," she said.

Part of IBM's plan is to embed a Universal Virtual Machine (UVM) in to the company's VisualAge for Java and VisualAge for Smalltalk tools. The UVM is already part of the Java tool and is scheduled to be dropped in to the Smalltalk tool soon [CW, April 13].

A virtual machine translates an application's language into code that an operating system can understand.

A Java virtual machine translates the language into code that can be read by various operating systems, whether a Unix flavor, Windows or Apple Computer, Inc.'s Mac OS.

IBM's UVM was designed to translate Java as well as Smalltalk and possibly even C++, which is the granddaddy of the development world.

COMPONENT BROKER

Another part of the plan is to add support for IBM's Component Broker technology in its VisualAge for C++ tool. Component Broker offers interoperability between C++ and Java, enabling a tool to generate code in either language.

That means between the UVM and Component Broker technology, IBM plans to integrate Java, Smalltalk and C++.

"That's quite innovative," said Bob Horgan, director of information systems at Bellcore in Morristown, N.J. "We have an enormous amount of legacy applications. Any time we do Java applications related to those systems, it would be very nice to stitch the old and the new applications together. Sounds like this would help us do that. That could save us a lot of time."

Horgan said his developers are building operation support system applications for various telephone companies.

And the new Java-based applications need to work with the thousands of legacy applications already running at those companies.

Karen Boucher, vice president of The Standish Group International, Inc. in Dennis, Mass., noted that IBM is in a race with Microsoft Corp., which is trying to integrate its development tools under its Visual Studio umbrella.

"They both know how important that integration is going to be," Boucher said. "But they have to keep it from being complicated. It has to be simple to use. It has to be seamless. That's the challenge." □

Informix delivers on time

CONTINUED FROM PAGE 57

Park, Calif., company delivered Dynamic Server 7.3 on time despite all the turmoil it has faced.

"It's always good when you say what you're going to do, and then you do it," said Todd Siler, a technical consultant for corporate systems at Sears, Roebuck and Co. "Whatever disruptions Informix has had, their product development and customer support have never dropped off."

Despite its troubles, Informix has kept technical support on an even keel.
– Larry Smyth, MCI Communications Corp.

Janice Richardson, manager of the systems and operations division for the city of Aurora, Colo., said she was pleasantly surprised that Dynamic Server 7.3 came out on schedule.

Informix "told us all along that they weren't cutting development or pushing back deadlines. And apparently they didn't," said Richardson, who is a member of the International Informix Users Group's leadership council.

And although Dynamic Server 7.3 isn't a major upgrade, the promised speed boost and new features, such as the ability to modify database tables without taking them off-line, are welcome additions to users such as Siler and Richardson.

Sears got a 30% performance boost in benchmarks of PeopleSoft, Inc.'s general-ledger application by switching to the new release, Siler said. The upgrade also should chop the amount of manual maintenance work that the database requires, he added. Sears, in Hoffman Estates, Ill., plans to begin implementing PeopleSoft's financial applications on Dynamic Server 7.3 late this year.

Richardson said she hopes to upgrade Aurora's databases this summer, but its application vendors first need to certify their software on Dynamic Server 7.3.

Changing the database without closing off access to end users should make it easier to fit maintenance procedures around the requirement that the city's police systems "essentially can't go down," she said.

Informix became profitable again in the fourth quarter last year. But that doesn't mean it is out of the woods, said Carl Olofson, a database analyst at International Data Corp. in Framingham, Mass. Informix needs to become a bigger factor in the fast-growing Windows NT market, where it hasn't had much success, he said. □

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CACHÉ™
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The post-relational database. For new dimensions of transactional performance.

Accounting app makers eye midsize market

By Marc Ferranti

GROWTH IN SALES to midsize companies will fuel worldwide packaged accounting software revenue to $10.4 billion by 2002 — a 15% compound annual growth rate — according to research from International Data Corp. (IDC), a Framingham, Mass.-based consultancy.

The small-enterprise market, encompassing companies with revenue of $250 million to $1 billion, is expected to remain the largest of five segments within the worldwide packaged accounting software market, according to IDC.

Meanwhile, the corporate (middle-market) segment, including companies with revenue ranging from $20 million to $249 million, will outpace the enterprise sector, which includes companies with greater than $1 billion in revenue, to become the second-largest revenue-generating segment.

VALUE-ADDED RESELLERS

Vendors that usually offer low-end products and companies that generally provide higher-end applications will butt heads as they vie for the growing business in the middle market, said Judy Hodges, IDC research manager for cross-industry applications. Attracting good value-added resellers will be the key for success in this area, she said.

The IDC research also noted that Windows NT appears to be the platform that enterprise applications vendors plan to ride into the middle-market segment. A flood of NT products became available and began selling well last year, IDC said.

Overall, SAP AG in Walldorf, Germany, dominates the worldwide accounting software market with worldwide revenue of $944.9 million. SAP also leads in the enterprise and small enterprise segments.

But PeopleSoft, Inc. in Pleasanton, Calif., showed the greatest overall accounting software market growth last year, with a 127.7% increase. □

Ferranti writes for the IDG News Service in New York.

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IBM, Voice Control try to bring speech technology to the phone

By James Niccolai

IBM HAS PARTNERED with Voice Control Systems, Inc. in Dallas, a manufacturer of speech recognition software for telecommunications use. The venture is aimed at boosting the adoption of voice-enabled telephony services by businesses, IBM said last week.

IBM hopes to combine the more advanced speech recognition capabilities of its Via Voice software with Voice Control's telephony products. The goal is to create speech engines and tools to build applications for things such as customer service and voice-mail retrieval, IBM said.

Voice Control's speech recognition technology is called SpeechWave, which recognizes spoken digits and midsize vocabulary of words, IBM said.

IBM in the third quarter will offer a new speech engine, Via Voice Telephony Run Time, which was designed to further the development of telephony-based speech products.

The speech engine will be followed in the fourth quarter by an updated version that can interpret more conversational language — known as "natural speech" — as opposed to structured commands, IBM said.

Voice Control's software supports more than 50 languages. IBM's Via Voice also supports a wide range of European, Asian and Arabic languages, IBM said. □

Niccolai writes for the IDG News Service in San Francisco.

NEW PRODUCTS

PRICE SYSTEMS has announced ForeSight, a Windows-based parametric forecasting tool for commercial and nonmilitary government software projects.

According to the Mt. Laurel, N.J., vendor, users enter information regarding project size, schedules, staffing, labor and cost into the forecasting engine. That information is entered in a question-and-answer format.

The results are fed back as standard reports, inputs for Microsoft Corp.'s Project or Microsoft Access files.

The experience level of project teams and processor constraints also may be considered.

It costs $975 per single-user license.

Price Systems
(609) 866-6591
www.pricesystems.com

PENTAGON SOLUTIONS, INC. has announced SDS 3.0, a software distribution application for Microsoft Corp.'s Windows 3.1, Windows 95 and Windows NT Workstation.

According to the Sault Ste. Marie, Ontario, company, the tool lets administrators install and upgrade 16- or 32-bit software regardless of network operating system and can report on all registry and file changes.

The "pull" option lets end users install software at their own pace. The "push" option lets administrators install software via E-mail attachments, log-in scripts or third-party suites.

Pricing for SDS 3.0 ranges from $3 to $8 per node.

Pentagon Solutions
(705) 253-4754
www.age.net——/~pentagon

Briefs

Buying PCs over Web has benefits

▸ *Dell leads the pack in value-added service*

By April Jacobs

BUYING PCs over the Web may be one of the easiest ways companies can cut costs and track their desktop assets during the next few years.

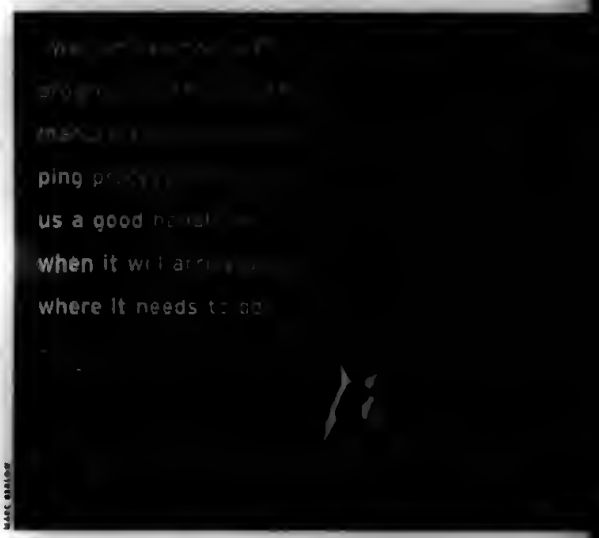
Detroit Edison, a wholly owned subsidiary of DTE Energy Co., has been buying PCs and servers over the World Wide Web since last fall. The company in October began using Dell Computer Corp.'s Premiere Pages to order PCs and servers without paper invoices. That cut ordering time from three weeks to two weeks and saved on internal labor.

Premiere Pages is a free program that lets Dell customers order and track PCs without paper invoices.

Wayne Hastings, assistant to the vice president of power generation, said electronic ordering via the Web offers business value to his company beyond labor and time savings. Dell maintains a Web site specifically for Detroit Edison that the utility uses to track orders and see what configurations it supports.

The company also can count on getting PCs and accessories quickly if it needs them for specific projects.

Dell, in Round Rock, Texas, has the most comprehensive Web-based PC commerce system on the market, analysts said. Dell customers can have customized Web pages and can set up paperless purchasing systems.



Marc Salem

A LEG UP

The effort gives Dell a clear advantage over competitors such as IBM and Houston-based Compaq Computer Corp., according to John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

Premiere Pages is a free program that gives Dell customers customized Web sites maintained by Dell with secure access for corporate buyers.

The Web page lets the buyer see any hardware and software loaded by Dell on machines they purchase. The buyer also can track the ordering and delivery cycle. The site also maintains vital service and warranty records. Bar codes on hardware

Buying PCs, page 66

Virtual tape eases E-commerce effort

By Nancy Dillon

IMAGINE: YOU'RE THE data center manager for a state government. You maintain records for 45 state agencies, including the behemoth Department of Revenue. Your center already processes 8,000 production jobs per night using more than 400,000 tapes and robotics that can handle only 100,000 cartridges at a time.

One day your state's lieutenant governor announces an electronic-commerce initiative that will tie your legacy systems — such as databases that track vehicle registration and tax return filings — to Internet services available to millions of citizens.

Do you immediately send out for blueprints to double the size of your data center? Or do you sit back and relax, confident that your group can handle the new wave of demand?

Jerry Kingrey, director of centralized computing at the North Carolina State Information Processing Service, found himself faced with that decision eight weeks ago.

And he didn't panic. He said if his state's electronic-commerce announcement had been launched just nine months earlier, he might have questioned his infrastructure. But since he began using a virtual tape system in December, he has gained considerable breathing room: an average of four hours per night.

"Virtual tape results in savings that domino throughout the night. So whereas before a

Virtual tape, page 66

REASONS TO CONSIDER A VIRTUAL TAPE SYSTEM

- Peaks in batch production workload consistently exceed your number of tape drives
- Batch production real-time window is stretched to or beyond its limit
- User service-level agreements for job turnaround times are being jeopardized
- Data center floor space is constrained by the growing size of your tape operation and library
- Upgrades to faster robots and tape drives are under consideration

NOTEBOOK PCs

Hold off on NT 5.0 upgrade, analysts say

By Kim Girard

WINDOWS NT 5.0 promises better management features and plug-and-play hardware installation on notebook PCs, but analysts said many companies might be better off skipping the first version of this upgrade, due out by early next year.

"My feeling is that by the time [companies are done upgrading], they'll wish they'd done nothing," said Ken Dulaney, an analyst at Gartner Group, Inc., a Stamford, Conn.-based consultancy. "Most users are going to waste a lot of money and get nowhere, and by the time they're done, [Microsoft] will be on NT 6.0."

To upgrade to Windows NT 5.0, Gartner recommends a minimum Pentium II notebook equipped with 64M bytes of RAM. But instead of pushing to NT 5.0 and investing a lot of money in new Pentium II PCs, most companies should upgrade memory on their existing

NT 5.0, page 66

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Microsoft

Seagate reports $129M loss in Q3

By James Niccolai

BLAMING PRICE competition and an oversupply of hard disk drives in the marketplace, Seagate Technology, Inc. last week reported a third-quarter loss of $129 million, compared with profits of $257 million in the same period a year ago.

Revenue for the quarter ended April 3 was $1.7 billion, down from $2.5 billion in the same period last year, the Scotts Valley, Calif., hard drive maker said.

Net loss per share was 53 cents, compared with a profit of $1.01 a year ago.

Sales of the company's high-performance disk drives were hit particularly hard. Manufacturers use the drives to build servers and powerful workstations, said Alan Shugart, Seagate's CEO.

Analysts have criticized Seagate for relying too heavily on its high-end business, an area it dominated until IBM, Fujitsu Ltd. and others entered the market in the mid-1990s.

Shugart acknowledged that Seagate has been late introducing products in an industry where product life cycles are short.

Shugart said restructuring efforts announced in January will return Seagate to profitability. Those plans will cut Seagate's workforce by about 10%. The company recently suspended the manufacture of hard drives for laptop computers. □

Niccolai writes for the IDG News Service in San Francisco.

Analysts: Delay NT 5.0

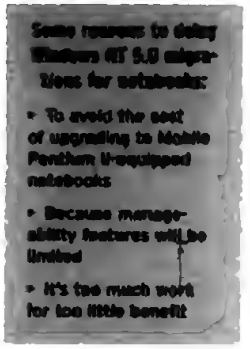
CONTINUED FROM PAGE 63

notebooks with lower-end processors and "sit and wait," Dulaney said.

State Farm Insurance in Bloomington, Ill., is looking at NT 5.0 but is running Windows 95 on most of its notebooks.

"Security is one of the reasons" to look at NT, said Craig King, manager of network services at State Farm.

The company is running NT 4.0 on some notebooks now but had some problems getting NT to work, he said.


Some reasons to delay Windows NT 5.0 migrations for notebooks:
• To avoid the cost of upgrading to Mobile Pentium II-equipped notebooks
• Because manageability features will be limited
• It's too much work for too little benefit

Source: Gartner Group, Inc., Stamford, Conn.

WAITING IT OUT

"We're not thinking about NT 5.0" until 2000, said the director of architecture and planning at a large Philadelphia-based pharmaceutical company, who asked to remain anonymous. "We almost always wait [until the bugs are fixed] because it's such a pain."

Users in the company are split on the ease of use of Windows NT 4.0, he said.

Some said they must reboot after hardware configuration changes, as they do with Windows 95, and that the system prevents them from loading their own software if the systems administrator requires passwords.

Noting that every new operating system has problems, one user said he prefers NT 4.0 to Windows 95 for its security features. He said he plans to install NT 5.0.

"You tell someone to wait for Version 6.0 [of a release, but] what are they supposed do in the meantime?" said Sean Blake, desktop support manager at Sphinx Pharmaceuticals, a subsidiary of Eli Lilly and Company, in Durham, N.C.

"Version 6.0 won't be out until 2001," Blake pointed out.

Blake, who has installed NT 4.0 on notebooks with 100-MHz processors, said the sole constraint with NT is memory, and memory is so cheap.

"It's not as easy to set up as 95," he said, "but once it's set up, it works great." □

Virtual tape eases E-commerce effort

CONTINUED FROM PAGE 63

user at, say, a food-stamp distribution office had to wait until 7 a.m. for files to become available, now they're available at 3 a.m.," Kingrey said. "Virtual tape is positioning us to become a real player in electronic commerce."

Virtual tape systems use a disk/software bundle that sits between mainframes and tape. They trick mainframes into thinking that disk cache is a group of tape drives and then stack the data from underused tape volumes on to one physical tape.

The systems range in price from $250,000 to $2 million, depending on cache size and software options. Kingrey's data center is using the Scimitar/VTS system from Santa Clara, Calif.-based Sutmyn Corp.

"We're packing multiple data sets on each cartridge, and our system is much more efficient." – Jerry Kingrey, N.C. Information Processing Service

"It was typical for us to only use up one inch on an entire reel of tape before," Kingrey said. "Now we're packing multiple data sets on each cartridge, and our system is much more efficient." He said the employee time spent manually mounting tapes each night has been slashed by more than half.

Sutmyn's Scimitar, unlike competing products from IBM and Louisville, Colo.-based Storage Technology Corp., works with a user's own tape drives and robots. It moves stacked data back through the mainframe to any mainframe-attached tape system rather than attaching itself directly to tape libraries.

IBM's Virtual Tape Server and StorageTek's Virtual Storage Manager only work with tape libraries from the same vendor. □

Buying PCs

CONTINUED FROM PAGE 63

let users and service technicians from Dell track individual hardware units for any service calls or warranty issues.

Companies that buy electronically can save time and money. They also may be able to track their assets more easily when they are initially kept in an electronic database rather than in paper filing systems or in one that needs manual updating.

Hastings said his company recently needed two monitors for a project on a Friday, and was able to place the order via its Premiere Pages Web site on a Thursday and have the monitors arrive the next day.

QUICKER PROCESSING

"It used to take three people to put an order for a PC through, now it takes one," Hastings said.

"We can also see how a PC is progressing through the manufacturing and shipping process, which gives us a good handle on when it will arrive and where it needs to go," he said.

Hastings estimated that with the paperless, Web-based system fully in place, Detroit Edison will be able to order 90% of its computers electronically, saving two hours of internal labor time the company used to spend on each order. □

Compaq cuts Deskpro prices

By Kathleen Ohlson

COMPAQ COMPUTER CORP. last week announced that it has cut prices on its Deskpro line in the U.S. by up to 25%, effective immediately.

The company reduced prices on its Deskpro 2000 product line by up to 16%. For example, the 5166X model with a 166-MHz Pentium processor with MMX, a 2.1G-byte hard drive, 16M bytes of RAM, 256K bytes of cache memory and Windows 95 now costs $849.

Compaq cut prices on the Deskpro 4000s by up to 25%. The 5200X with a 200-MHz Pentium with MMX, a 3.2G-byte hard drive, 32M bytes of RAM, 512K bytes of cache memory and Windows 95 now sells for $1,179. Compaq also cut prices on its Deskpro 6000s by up to 19%. The 6233X with a 233-MHz Pentium II processor, a 2.1G-byte hard drive, 32M bytes of RAM, 512K bytes of cache memory and Windows NT 4.0 now costs $1,759. □

Ohlson writes for the IDG News Service in Boston.

NEW PRODUCTS

TANDBERG DATA, INC. has announced three multichannel linear recording (MLR) tape libraries: TDS 1201-1 MLR3, TDS 1420-1 MLR3 and TDS 1440-1 MLR3.

According to the Simi Valley, Calif., company, the tape libraries feature capacity ranges of 250G bytes (native) to 2T bytes (compressed) and use one to four Tandberg Data MLR3 tape drives and 10 to 40 data cartridges. They were designed for backup/recovery, near-line storage and hierarchical storage management. Two-channel recording is currently standard, and more channels will be added in the future for tape capacities.

The TDS 1210-1 costs $11,638. The TDS 1420-1 costs $21,485. And the TDS 1440-1 costs $29,107.

Tandberg Data
(805) 579-1000
www.tandberg.com

MERIDIAN DATA, INC. has announced Snap Server, a network-attached storage server that can handle capacities ranging from 4G to 12G bytes.

According to the Scotts Valley, Calif., company, the network-attached storage can be added to almost any Ethernet LAN.

Snap Server was designed for storage and retrieval of data such as E-mail messages, high-resolution graphics files or larger applications that might otherwise overburden main file servers.

Snap Server supports all the major network protocols used on PC networks, including TCP/IP, CIFS and IPX.

A 4G-byte Snap Server costs $995.

A 12G-byte Snap Server costs $1,795.

Meridian Data
(408) 438-3100
www.meridian-data.com

Managing

Good Advice CHEAP

By Rick Saia and Allan E. Alter

Dig in to these fresh insights from researchers and consultants on SAP, effective IT spending, motivating IS people and becoming process-oriented

SECRETS OF THE IT CHEAPSKATES

How much bang are you getting for your IT buck?

Companies that spend the most on information technology shell out almost 10 times as much per employee as the low spenders for comparable IT services and technologies, according to a 1997 Deloitte & Touche LLP study on leading trends in information systems (see chart at right).

But low-spending companies generate a higher return on their IT investments. Low spenders take in $211,000 per employee, which is only $8,000 below the average of all companies. The figure for high spenders, meanwhile, is $253,000, but that's only 15.5% above the average.

Low spenders seem to save money on IT by investing in training. They spend 4.6% of their operating budgets on training as opposed to 2.5% for high-spending companies.

To get the most from your IT dollar:

- Avoid duplicating technology, such as when financial systems use one database platform and marketing, sales and human resources use others. Such combinations, the Deloitte & Touche study says, can hamper efficiency. "Simplicity is better," the study notes.
- Build only when justified. "Companies need an extremely compelling business reason to justify building their own systems."
- Deploy technologies that are necessary for doing business. "Before buying, first build a clear business case. The alternative is a technological Tower of Babel. More to support. More confusion. More to go wrong."

The Deloitte and Touche study, published late last year, surveyed nearly 500 top information executives at North American companies.

SAP WORKS, BUT WATCH PEOPLE ISSUES

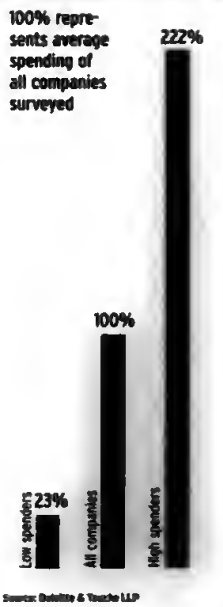
Thinking of rolling out SAP AG software? Here's some hopeful news for you:

A survey by The Conference Board, a New York-based business research organization, found a "very high" level of satisfaction with the benefits arising from SAP. On a scale of 1 to 10, with 10 being most satisfied, responding companies rated their SAP satisfaction level a 7.2.

Yet a significant number of respondents indicated that big problems and pitfalls were found among the "soft" factors: people, organizations, executive support, user involvement, communications, managing expectations and training.

Good advice cheap, page 68

THE CHEAPSKATE ADVANTAGE: MUCH LOWER IT SPENDING PER EMPLOYEE

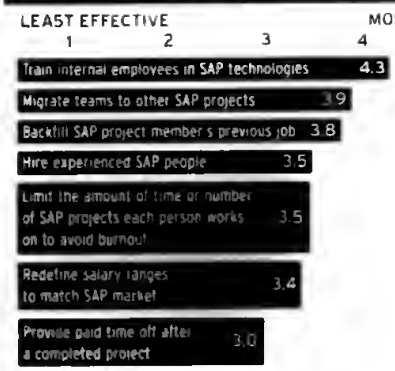


Source: Deloitte & Touche LLP

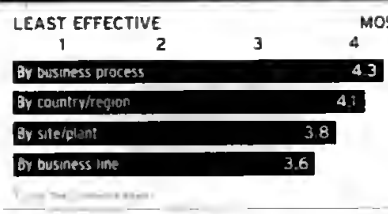
Good Advice CHEAP

CONTINUED FROM PAGE 67

SAP: STAFFING AND RETENTION


LEAST EFFECTIVE
MOST EFFECTIVE
1
2
3
4
5
Train internal employees in SAP technologies 4.3
Migrate teams to other SAP projects 3.9
Backfill SAP project member's previous job 3.8
Hire experienced SAP people 3.5
Limit the amount of time or number of SAP projects each person works on to avoid burnout 3.5
Redefine salary ranges to match SAP market 3.4
Provide paid time off after a completed project 3.0

SAP: IMPLEMENTATION



Important SAP recommendations include the following:

- Strong project leadership and management practices and continuous involvement of top executives are key.
- The best people, not the available people, should be assigned to the project full time.
- Project teams need a business vision and overall architecture established in advance to deliver the best possible results.

The study also showed the effectiveness of different approaches to staffing, retention and implementation. The Conference Board surveyed 186 companies, mostly in the Americas, from January to April 1997. Most of the companies are manufacturers.

ORDER-TAKERS NEVER PROSPER

Chief information officers, want to be effective? Don't let your IS organization just take orders from users. And get involved in business planning.

Thomas M. Lodahl tracks IS effectiveness for a living as a principal at CogniTech Services Co., a 15-year-old consultancy in Columbus, S.C. In his research on more than 70 companies, he found that only 43% of CIOs and CIO-equivalents are included in top-level business-planning processes. The rest are much more likely to get into trouble if they're not involved in planning, it's harder to link IT spending and projects to key business goals.

Worst off, Lodahl says, are the "order takers" — companies where systems requests from users are the primary way of setting IS priorities. Those companies are in the bottom 20% in IS effectiveness of those he has studied. A top reason: Business managers often don't request the systems they need to support their goals.

Lodahl defines IS effectiveness as the degree to which IS contributes to the business goals and objectives stated by senior business managers.

HOW TO KEEP IS MANAGERS MOTIVATED

What keeps IS managers happy? A lot depends on seniority, according to Laurence Sheehan.

Sheehan has been tracking job motivation — what factors give IS personnel self-respect and self-esteem — for decades. The chairman of The Cambridge Assessment Centre Inc. a Wellesley, Mass., consultancy sees a big difference between "new breed" and "old guard" managers — those who have been in those roles for five years or less vs. 10 years or more (see box below). Because of the recession and the reengineering/downsizing trend in the early '90s, his database includes few people with six to nine years in IS management.

New managers crave intellectual stimulation and desire recognition and flexible schedules. "Attaboys," interesting work and creature comforts are important to them. Older managers don't care much about kudos; they want to climb the ladder. Their top motivational factor is the opportunity to retrain.

Compensation and benefits rank high, Sheehan says, but "the money isn't so much a motivator as a dissatisfier. If it's not there, watch out. But you can't throw money at the problem." And job security and early retirement rate low because of all those IS job openings, Sheehan says. His findings are based on studies of 70 companies conducted over 20 years.

PEOPLE WHO NEED PEOPLE

Good news: The old saw that IS professionals have fewer social needs than forest rangers is outdated, according to Robert A. Zawacki, president of the consulting firm Zawacki & Associates in Colorado Springs.

Zawacki has measured what he calls IS professionals' "Social Need Strength" for 19 years and found that index has seen a sizable jump during the past two, from 4.2 to 4.75. Social Need Strength, or the need to interact and have meaningful relationships both on and off the job, was measured on a scale of 1 (lowest need) to 7 (highest), based on answers to 77 questions on social and career growth.

Zawacki says the recent "huge influx" of people without computer science education, especially those with business degrees, may be the reason.

The score is still low — although above that of engineers, Zawacki says — but he calls the increased social needs "great news because these people will work better with their customers, work better in teams and be better managers." □

WHAT MAKES THEM HAPPY?

OLD GUARD	NEW BREED
1. Ability to retrain	1. Intellectual stimulation
2. Compensation/benefits	2. Compensation/benefits
3. Opportunity for promotion	3. Recognition/awards
4. Scheduling flexibility	4. Scheduling flexibility
5. Intellectual stimulation	5. Ability to retrain
6. Increased authority	6. Opportunity for promotion
7. Early retirement	7. Job security
8. Job security	8. Early retirement
9. Recognition/awards	9. Increased authority

Source: Laurence Sheehan, The Cambridge Assessment Centre Inc.

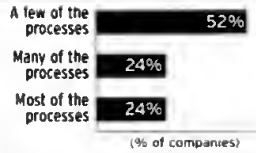
BUSINESS PROCESSES INVADE ORGANIZATIONAL CHARTS

Functions are fading, and processes are rising as ways to organize a company, judging from a survey by The Information Management Forum (IMF) of its members.

What does this mean for IS? A process-driven organization could force IT standardization across departments so there's more interconnectivity, says Chuck Lybrook, executive director of the organization of information and business executives in Atlanta. "That's what drives [enterprise resource planning] systems," he says.

The study says half of IMF companies surveyed are moving or planning to move from a functional to a business-process orientation — that is, organizing staff not by traditional departments, but by the business process they are part of. Those changing are doing so cautiously, starting with a few processes. The largest single driver of that move: improved customer service.

PROCESSES BEING MOVED

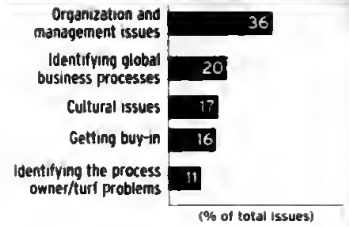


BUSINESS-PROCESS ORIENTATION BENEFITS

* Sum of ranked responses. Numerical values score from 5 (high) to 1 (low), based on reported value of benefit.

Organization and management issues head the list of concerns for companies organizing themselves by business processes.

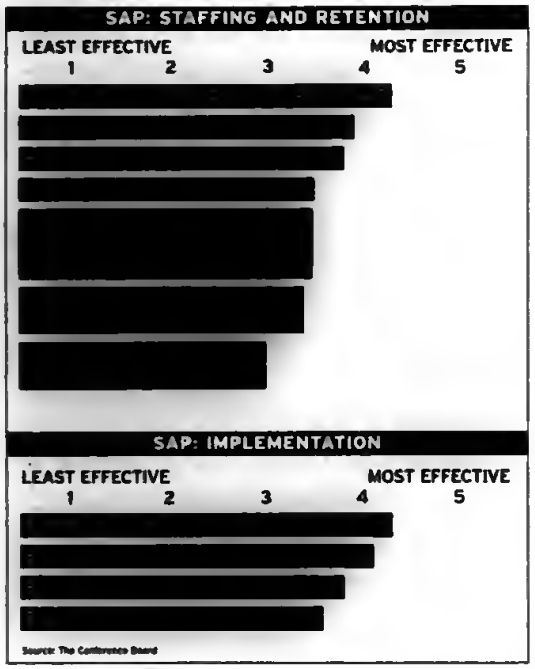
TOP 5 ISSUES IN IMPLEMENTING A BUSINESS-PROCESS ORIENTATION


Organization and management issues 36
Identifying global business processes 20
Cultural issues 17
Getting buy-in 16
Identifying the process owner/turf problems 11
(% of total issues)

Source: The Information Management Forum

Good Advice CHEAP

CONTINUED FROM PAGE 67



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HOW TO KEEP IS MANAGERS MOTIVATED

What keeps IS managers happy? A lot depends on seniority, according to Laurence Sheehan.

Sheehan has been tracking job motivation — what factors give IS personnel self-respect and self-esteem — for decades. The chairman of The Cambridge Assessment Centre, Inc., a Wellesley, Mass., consultancy, sees a big difference between "new breed" and "old guard" managers — those who have been in those roles for five years or less vs. 10 years or more (see box below). Because of the recession and the re-engineering/downsizing trend in the early '90s, his database includes few people with six to nine years in IS management.

New managers crave intellectual stimulation and desire recognition and flexible schedules. "Attaboys," interesting work and creature comforts are important to them. Older managers don't care much about kudos; they want to climb the ladder. Their top motivational factor is the opportunity to retrain.

Compensation and benefits rank high, Sheehan says, but "the money isn't so much a motivator as a dissatisfier. If it's not there, watch out. But you can't throw money at the problem." And job security and early retirement rate low because of all those IS job openings, Sheehan says. His findings are based on studies of 70 companies conducted over 20 years.

PEOPLE WHO NEED PEOPLE

Good news: The old saw that IS professionals have fewer social needs than forest rangers is outdated, according to Robert A. Zawacki, president of the consulting firm Zawacki & Associates in Colorado Springs.

Zawacki has measured what he calls IS professionals' "Social Need Strength" for 19 years and found that index has seen a sizable jump during the past two, from 4.2 to 4.75. Social Need Strength, or the need to interact and have meaningful relationships both on and off the job, was measured on a scale of 1 (lowest need) to 7 (highest), based on answers to 77 questions on social and career growth.

Zawacki says the recent "huge influx" of people without computer science education, especially those with business degrees, may be the reason.

The score is still low — although above that of engineers, Zawacki says — but he calls the increased social needs "great news because these people will work better with their customers, work better in teams and be better managers." □

WHAT MAKES THEM HAPPY?

OLD GUARD	NEW BREED
1. Ability to retrain	1. Intellectual stimulation
2. Compensation/benefits	2. Compensation/benefits
3. Opportunity for promotion	3. Recognition/awards
4. Scheduling flexibility	4. Scheduling flexibility
5. Intellectual stimulation	5. Ability to retrain
6. Increased authority	6. Opportunity for promotion
7. Early retirement	7. Job security
8. Job security	8. Early retirement
9. Recognition/awards	9. Increased authority

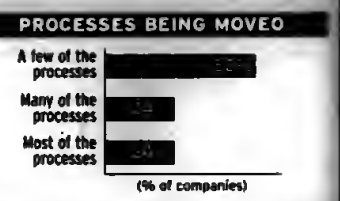
Source: Laurence Sheehan, The Cambridge Assessment Centre, Inc.

BUSINESS PROCESSES INVADE ORGANIZATIONAL CHARTS

Functions are fading, and processes are rising as ways to organize a company, judging from a survey by The Information Management Forum (IMF) of its members.

What does this mean for IS? A process-driven organization could force IT standardization across departments so there's more interconnectivity, says Chuck Lybrook, executive director of the organization of information and business executives in Atlanta. "That's what drives [enterprise resource planning] systems," he says.

The study says half of IMF companies surveyed are moving or planning to move from a functional to a business-process orientation — that is, organizing staff not by traditional departments, but by the business process they are part of. Those changing are doing so cautiously, starting with a few processes. The largest single driver of that move: improved customer service.



BUSINESS-PROCESS ORIENTATION BENEFITS
Improved customer service
Cost reduction/ avoidance
Improved productivity
Faster time to market
Enable new products and services
Project management/control
(Weighted score*)
* Sum of ranked responses. Numerical values score from 5 (high) to 1 (low) based on reported value of benefit.

Organization and management issues head the list of concerns for companies organizing themselves by business processes.

TOP 5 ISSUES IN IMPLEMENTING A BUSINESS PROCESS ORIENTATION
Organization and management issues
Identifying global business processes
Cultural issues
Getting buy-in
Identifying the process owner/turf problems
(% of total issues)

Source: The Information Management Forum

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WORLD

IS AMBASSADORS

Why pay big fees when "internal consultants" can solve problems and cozy up your users? That's the thinking behind this hot role for young IT managers

By Alan S. Horowitz

Devising technical answers to technical problems is an information technology specialty. But what often befuddles techno-whizzes is helping business units identify what the important problems are in the first place.

We're not good at "making sure we pick the right problems to solve and that those problems are in the right context," observes Jim Dowling, director of corporate information services at Bose Corp., a maker of stereo equipment in Framingham, Mass.

That's why Dowling has designated six of his 100-plus IT employees as "business consultants." You need people with a broad view of business to help solve nontechnical issues, he says.

Internal IT consultants such as Dowling's function much like outside consultants. They can provide project planning, vendor evaluation and selection, and implementation, among other services, says Greg Walton, vice president and chief information officer at Carilion Health System, an integrated health care system in Roanoke, Va. Walton has five designated consultants among his 150 information systems employees. And Mike Cummins, vice president of information systems at VHA, Inc., a national alliance of health care organizations in Dallas, has five consultants on his staff of 90.

They aren't synonymous with relationship managers [CW, March 23]. Internal IT consultants focus on solving problems and getting projects off the ground. They don't necessarily serve as the designated intermediary between IS and a particular department.

SKILLS NEEDED

IS departments are looking to employees with consulting skills because technical know-how alone isn't enough to get IT work done well. Consultants need a strong capacity to learn, be able to shift gears quickly (such as from a guiding to a technical role) and be willing to get results through other people rather than be in the spotlight, Dowling says.

"They have to be able to organize and give structure to a process," Walton says. "They have to be flexible, think on their feet and know when to keep their mouth shut and when to open it and provide advice."

Dan Bent, CIO at Benefit Systems, Inc., a third-party administrator of employee benefit plans in Indianapolis, likens the typical IT person and the consultant to an ostrich and eagle. "The ostrich is looking only at his local area, whereas the eagle is up in the air seeing the whole panorama of possibilities," Bent says. The consultant needs the eagle's perspective.

Also needed are political skills, notes Ferdinand Setaro, managing director at TLE Consultants in Haddonfield, N.J. "Department heads will dig in their heels," he warns. Dealing with that requires political savvy. Cummins places much value on listening and communications skills. He says that without them, the consulting function is likely to fall apart.

Why have internal consultants? Walton benefits by their objectivity and neutrality, which help build consensus between IT and the business units, he says. When dealing with materials management, for example, Walton notes that not only is the materials operation affected, but also accounting, nursing and other departments. "One of [the consultants'] roles is to facilitate cross-group communication," Walton says. "My consultants behave like they are paid outsiders." With the consultant's advice, the managers can agree more quickly and with less conflict.

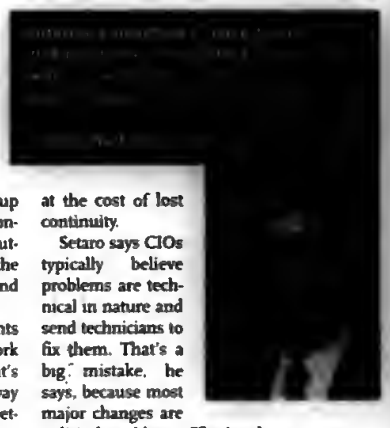
Cummins stations his consultants right with the business units they work with, rather than in the IS department's offices. That, he says, provides two-way benefits. By attending department meetings and strategy sessions, they understand their units' needs, which they take to IS. In return, they convey IS issues to the business units. The bottom line: Business units and IS work better together.

Some, including Walton, champion internal consultants because they save money. It's cheaper to have an on-staff consultant than pay high-priced outsiders. But Alan Cranford, vice president of operations at Tenent Healthcare Corp. in Dallas, takes an opposing view. He outsources 80% to 90% of his IS staff and doesn't have internal IS consultants because of the overhead. "We basically buy the skills when we need them vs. having the skills on staff," he says.

MISTAKES

It's easy for IS managers to make mistakes when creating an internal consulting function, such as hiring those who lack needed communication and leadership skills or people who lack the political and personal heft to influence internal decision makers.

Dowling says it isn't a good idea for a consultant to stay too long with a project, because they get "branded" with it, which hurts their effectiveness when they move on to other activities. He recommends rotating consultants out of a project after three to four months, even at the cost of lost continuity.



Setaro says CIOs typically believe problems are technical in nature and send technicians to fix them. That's a big mistake, he says, because most major changes are political problems. That's where a consultant's political skills become valuable.

Not getting the department heads' support is another mistake to be wary of, Cummins warns. "If the department does not see the value in [the consultants] helping them solve problems, the consulting function falls apart." The CIO must be convincing that the business units' needs — and not IT's — are first and foremost, he says.

The consultative function is sometimes taken for granted within IS, yet it requires skills and knowledge not found within traditional IS responsibilities. Though you may not want designated consultants, recognize that at least some of your IS folks need consulting skills, including knowing how to manage projects, how to communicate well and how to be effective working in the background while leaving the spotlight to others. □

Horowitz is a freelance writer in Salt Lake City.

Syllabus for internal consultants

CIOs have provided the following training to internal IT consultants:

- Project management
- Communications skills
- Listening skills
- Negotiation skills
- Writing skills
- Leadership skills
- Contract management
- Industrywide seminars and conferences
- Knowledge about the business units they interact with

COMPUTERWORLD

Greg Walton at Carilion Health System talks about the value of internal IS consultants in an audio interview with Computerworld's Rick Saia. www.computerworld.com

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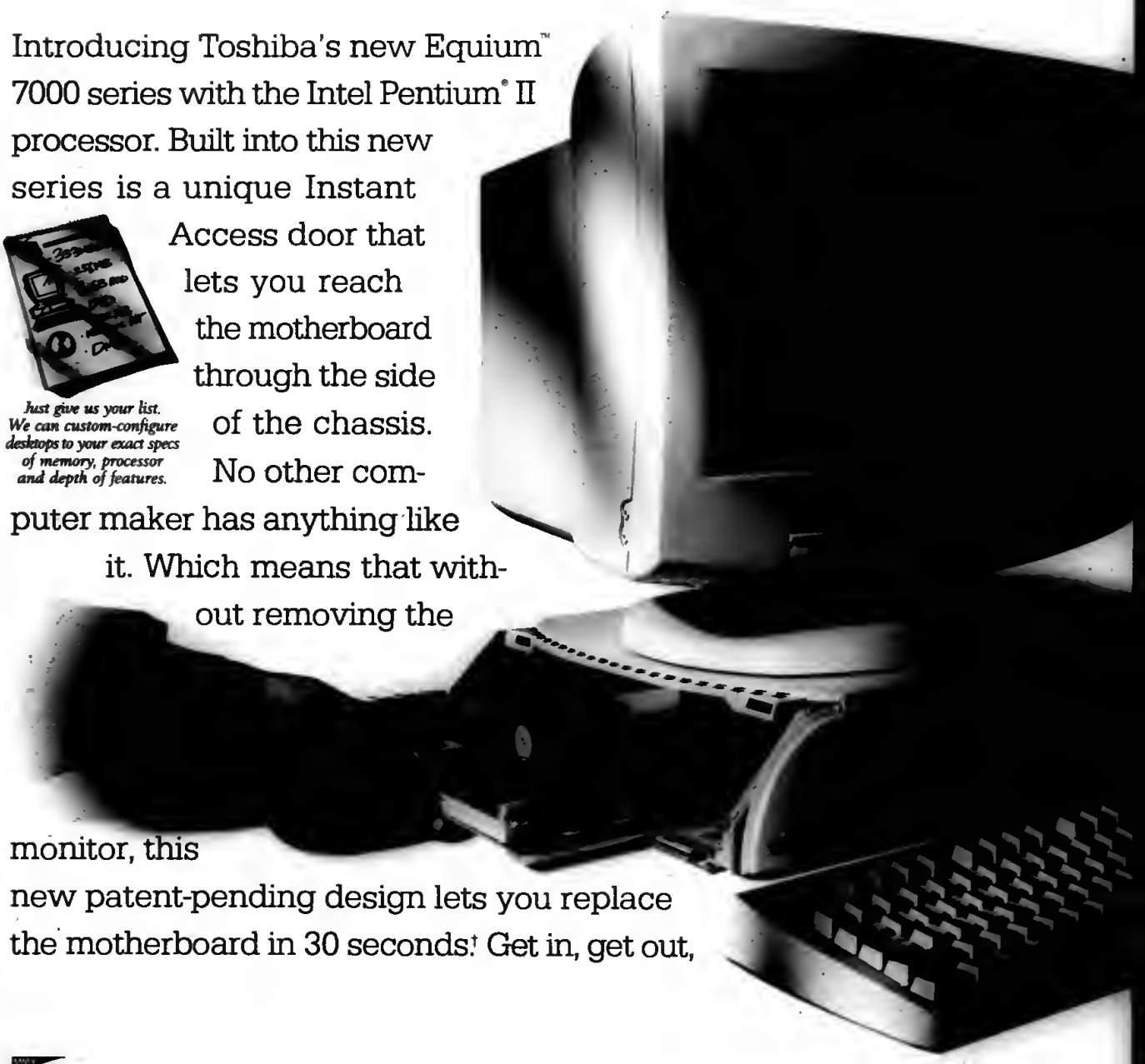

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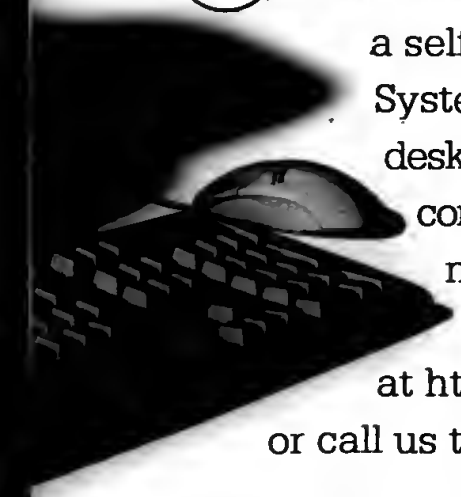

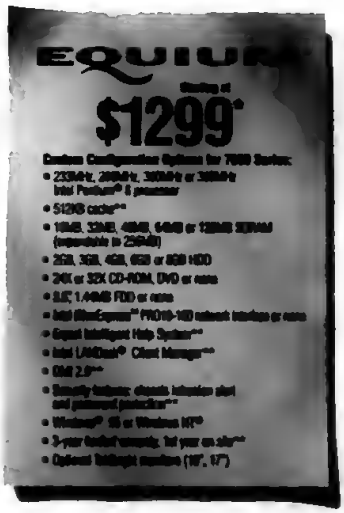

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all of the current year 2000 discussions about prioritization, I fear that many IT managers are overlooking an unpleasant by-product of their triage efforts: the near-certain failure of their noncritical systems.

YEAR 2000 ALSO INVOLVES NONCRITICAL SYSTEMS

Those systems may not be critical, but many are still important. Unless conscious plans are made for fixing or shutting down all of those orphan systems, chaos will ensue.

Consider, for example, the latest "report card" from U.S. Rep. Stephen Horn's year 2000 oversight committee: In the process of giving the federal government a "D-minus" grade for its year 2000 efforts, the California Republican predicts that only 67% of the government's systems will be repaired by Jan. 1, 2000. But that 67% reflects only mission-critical systems. The noncritical systems don't even show up in reports from the Office of Management and Budget. The states aren't doing much better: The March 5 issue of *The Albany Times Union* reported that more than half of the state of New York's IT systems will be repaired only if indivdual agencies can find the time and money after fixing the mission-critical systems.

OFF THE BACK BURNER?

Throughout the private sector, we're likely to find the same thing. Virtually all the money and human resources today are being focused on the mission-critical systems that keep the enterprise alive. But for between one-third and one-half of the overall IT portfolio, the strategy is: "We'll get around to them if we have time."

But what if it turns out you don't have the time?

Organizations might still be able to carry out their primary functions if a noncritical system fails, but the company could still be hurt badly. A mission-critical system failure for a hotel would force it to evacuate its guests; a noncritical system failure might disrupt reports to management on the occupancy rate of rooms.

So why not shut down the noncritical systems now, while there is still time to do so in an orderly, controlled fashion? The reaction from most organizations is likely to be, "No, they're too important. Even if these systems aren't mission-critical, they are important and profitable. We won't be bankrupted if they fail, but it will cost us a lot of revenue. So we intend to keep running them right up until New Year's Eve 1999. And there might be a miracle. Maybe we'll find that we do have the resources to fix these systems at the last moment." Unfortunately, that is highly optimistic. If the organization hasn't allocated resources to the noncritical systems by now, the chances of a last-minute miracle are slim.

What then? What plans do you have for shutting down the noncritical systems in an orderly fashion on New Year's Eve 1999? Have the plans been documented? Do your end users know about the plans, and do they realize they could be without jobs on Jan. 3, 2000? And what about the external entities with which the doomed noncritical systems interact?

It's naive to expect that these systems will die gracefully on their own Jan. 1, 2000. Many will continue running but will spew out incorrect output and begin corrupting enterprise databases. Even if a noncompliant system halts abruptly at the stroke of midnight Dec. 31, 1999, it will leave end users and customers stranded without any advance warning. After all, a system that's noncritical to your organization may be very mission-critical to some of your external suppliers, vendors or customers. You probably don't want them to abandon you in 1998 just because you've decided to shut down those systems at the end of 1999.

LITIGATION RISK?

On the other hand, if you don't notify them at all, you may be vulnerable to litigation if a post-year 2000 lawsuit uncovers the fact that your organization relegated System X to the noncritical priority level and it becomes apparent that you had no credible plan for repairing System X. In contrast, if you formally notify your vendors, suppliers and customers between now and, say, Jan. 1, 1999, that you have decided to shut down System X on Dec. 31, 1999, then you have a much better chance of avoiding a lawsuit.

Remember also that if a system isn't repaired by Jan. 1, 2000, it probably won't be repaired by Jan. 2 or 3, either. It could well be a month, a year or longer before the battle-weary year 2000 project team finally gets around to repairing the noncritical systems. Some recent assessments of federal agencies have concluded that they won't finish their work until at least 2014.

The details will vary from company to company and from system to system. But the bottom line is that you can't afford to devote 100% of your attention to the mission-critical systems. If nothing else, you need to devote enough attention to all of the noncritical systems to administer a morally and legally defensible form of euthanasia. □

Yourdon heads up the Year 2000 Advisory Service at the Cutter Consortium in Arlington, Mass. His most recent book is Time Bomb 2000. *He can be reached via E-mail at ed@yourdon.com.*

f.y.i.

A $42 million question

Trying to figure out what your users need? One of the best questions for users we've ever come across comes from the data warehousing managers at BC Telecom in Vancouver, British Columbia, who spoke at a recent Data Warehousing Institute conference in San Diego.

When they were preparing a new companywide data warehouse, they put this question to users: If you knew something you don't know today, or had easy access to information you don't have now, what opportunity could you create, and how much revenue would it generate?

They received 49 ideas for new business opportunities using the data warehouse; about one-third have resulted in actual applications so far, said Dale Topham and Norm Tymo, two managers involved in the data warehousing project. Suggestions included ideas for using marketing information to retain customers and to identify the kinds of products and services that might be of interest to individual customers.

Early estimates are that those ideas could bring in $42 million in revenue over three years. BC Telecom's data warehouse has generated $5 million in additional revenue in its first six months, but not all of that comes from those ideas, Tymo noted.

— Allan E. Alter

GIVE CHAOS

THE BOOT AND FINISH

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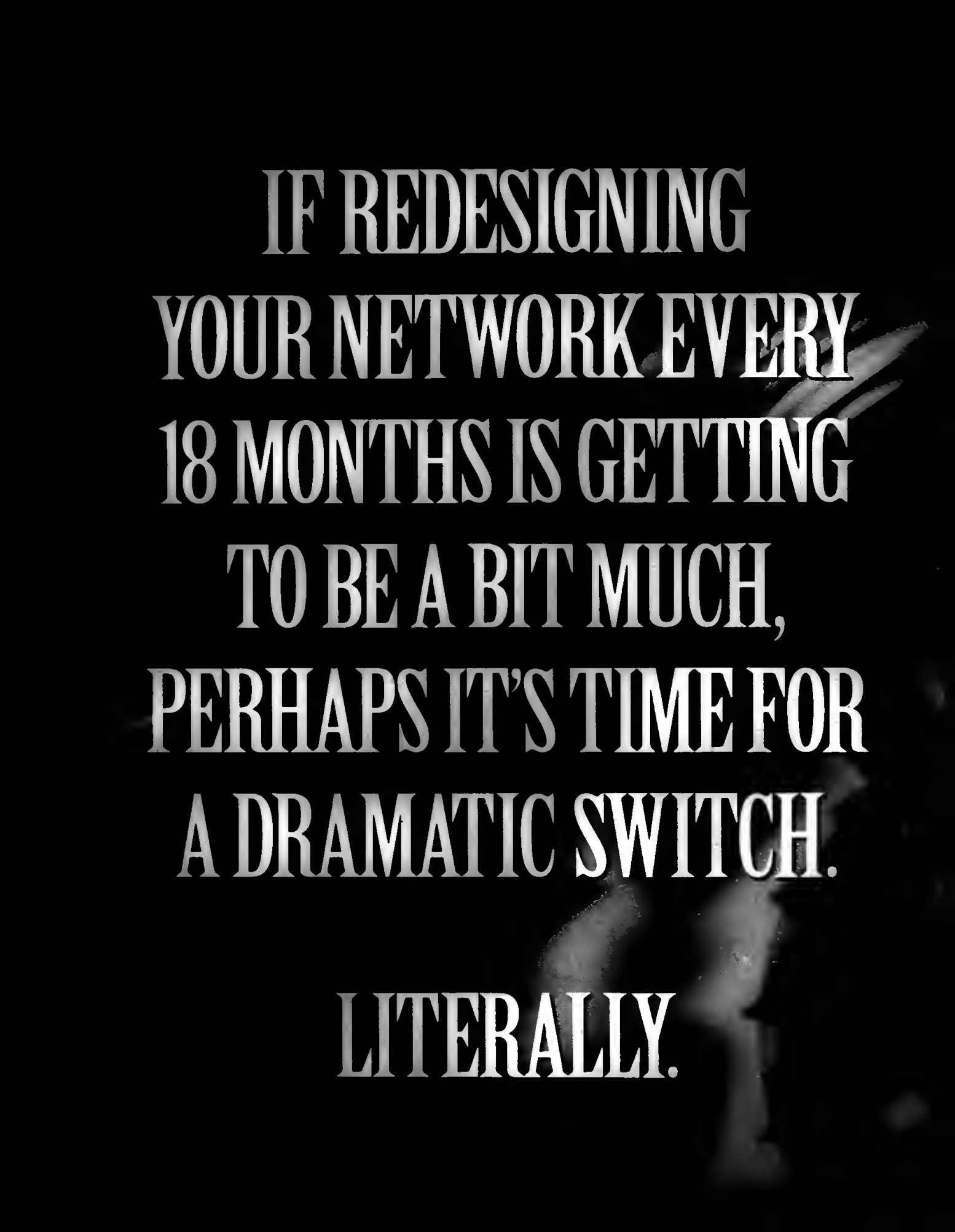
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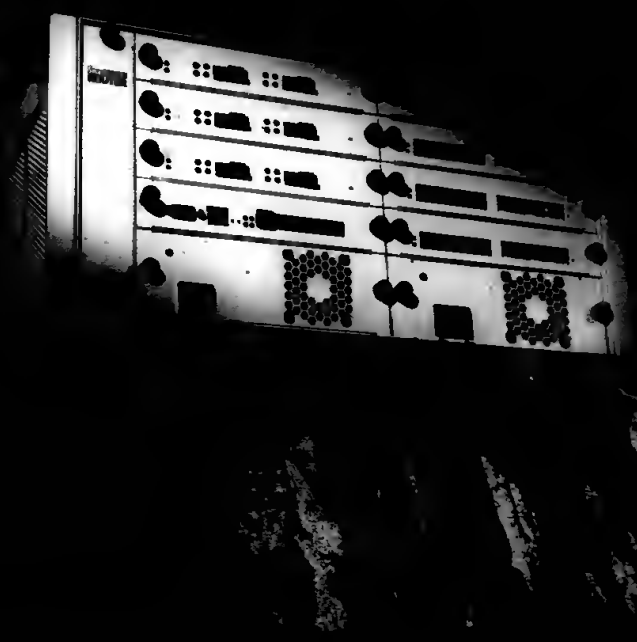

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Review Center

Users rate server support

NO TIME for DOWN

GOOD RESPONSE TIMES DRIVE GOOD CUSTOMER SATISFACTION RATINGS FOR SERVER VENDORS' SUPPORT

BY AMY MALLOY

The way to a customer's heart is through his wristwatch, at least when it comes to technical support. *Computerworld*'s survey of 238 information systems managers shows they are generally pleased with the level of support and service they get from their enterprise server vendors. And it's fast response times that keep them happy.

Managers who say they are pleased with support used words such as "fast," "timely," "responsive" and "prompt" to describe their vendor's support. On the flip side, respondents who gave their vendors lower grades complained about poor response times.

Overall, server vendors and their service partners seem to be doing a good job. The respondents gave their vendors an average score of 4.10 on a 5-point scale, which is noticeably higher than the scores in product-oriented customer satisfaction surveys conducted by *Computerworld* in recent years.

Response ties in to more than just how quickly a vendor answers a telephone or arrives at your office. User companies look at response across all areas of support delivery, from how long it takes to find an answer on a World Wide Web site to how quickly a vendor gets a service contract in order. Users say the ability to prioritize problems is crucial. If the system is down, vendor response must be quick, says Jim Hansen, network manager at the University of Minnesota's Department of Family Practice in Minneapolis. But response time isn't as important for upgrades, he says.

OVERALL SATISFACTION

Server vendors score well on [illegible]

IBM	4.24
HP	4.18
Digital	4.14
Compaq	4.12
Sun	3.82

[illegible] of IS managers

Any downtime is hard for users. "One day we can get by [with our system down], but it hurts. It costs us money. Everybody has to work overtime to bring up the system, [and] the system slows down," says HP user Ken Scottberg, MIS manager at Autotype Americas, Inc. in Schaumburg, Ill.

The vendors that received the highest ratings were the ones with the most years of experience in the field — IBM, Hewlett-Packard Co. and Digital Equipment Corp. — and IBM scored best in overall satisfaction. "I'm not at

Highlights of the survey

- **In general, the vendors are doing very well. In overall satisfaction, IBM was on top. Sun, from the looks of its scores in most areas, has some work to do.**
- **Users typically find on-site and phone support to be good. Where users have complaints, they center on response time.**
- **Response time is the primary criterion on which users judge support.**
- **The Compaq/Digital merger concerns and excites customers of both vendors. They wonder what type of support they will receive in the future, but analysts predict good things for customers (see story, page 80).**
- **Remote automated diagnostics scores were low. Analysts mention security concerns as a possible reason.**
- **Web-based support still offers limited functionality. The most common uses for it today are to answer frequently asked questions and patch downloads (see story, page 84).**

METHODOLOGY

Computerworld's Information Management Group conducted this telephone survey, interviewing 50 U.S.-based customers each of IBM, Digital, Compaq and Hewlett-Packard and 38 customers of Sun Microsystems. The five vendors were recommended by analysts based on market presence in the Unix and PC server sectors. Companies were asked to rate vendors on a 1 (very poor) to 5 (very good) scale in various categories. Eric Rocco, a senior analyst at Dataquest in Westboro, Mass., assisted with the development of the survey and the analysis of the survey results.

TIME

all surprised at the order of the top three. IBM, HP and Digital have a more mature infrastructure," says David Vellante, a senior vice president at research firm International Data Corp. (IDC) in Framingham, Mass.

Although Compaq Computer Corp.'s numbers were in line with those vendors in overall satisfaction, the PC giant tailed off in many categories. Sun Microsystems, Inc. showed weaknesses throughout the survey, ranking last in nearly every category. Sun did post good scores in areas such as technical knowledge and responsiveness of on-site support staff. (There were 50 users for each of the other vendors, but only 38 Sun customers participated in the survey.)

Sun, which says it has invested heavily in service in recent years, may be a victim of perception lagging reality, according to analysts. "Sun really has improved its organization over the last two years. They have hired a lot more people in the support organization. So they do a lot more of the support themselves," says Paul McGuckin, a vice president at Gartner Group, Inc. in San Jose, Calif.

Malloy is Computerworld's associate editor, Review Center.

ON-SITE SUPPORT

All vendors' average ratings were at "good" or better for technical knowledge and responsiveness of on-site support staff. Digital received the highest marks in both areas.

"The technicians are very knowledgeable and are quick to respond." — *Digital user Ron Jones, manager of information technology at Market Research Services, Inc. in Cincinnati*

"They are just outstanding. They are the best in the field." — *A Digital user*

"If you call HP with a problem in the morning, someone is usually there to fix it by lunchtime." — *Paul Noerenberg, computer operations manager at Tri Star Marketing, Inc. in Urbana, Ill.*

"Most of the time, the people [IBM] sends in are knowledgeable. On-site support from IBM is very good." — *Leslie Block, president of SDA Freight Data Corp. in Newport Beach, Calif.*

RESPONSIVENESS OF ON-SITE SUPPORT STAFF	TECHNICAL KNOWLEDGE OF ON-SITE SUPPORT STAFF
HP 4.23	4.18
Digital 4.22	4.35
IBM 4.16	4.27
Sun 4.09	4.09
Compaq 4.07	4.02

TELEPHONE SUPPORT

HP held a steady first place for both technical knowledge and availability of phone support staff. Sun was last in both areas. Phone support scores were slightly lower than the scores for on-site support.

"HP is good on telephone response — better than most vendors."
— *Jim Hansen, University of Minnesota*

"They have given us incorrect information. We have had to make multiple calls, and they are not quick in responding to our calls."
— *Sun user Terry Gale, MIS manager at the Santa Cruz Metro Transit District in California*

"They send people out in less than 24 hours after we call them. They just give good service."
— *An IBM user*

"We have had more problems with [IBM] on the phone than in person."
— *Leslie Block, SDA Freight*

"I usually am able to resolve issues with one phone call."
— *Compaq user Greg Keating, MIS supervisor at Olson International Ltd. in Lombard, Ill.*

"It takes 20 minutes to get to someone."
— *Compaq user Thomas Murphy, MIS director at Bruce McGaw Graphics, Inc. in West Nyack, N.Y. Murphy wants quicker access to knowledgeable technicians*

Downtime, page 80

TECHNICAL KNOWLEDGE OF PHONE SUPPORT STAFF	AVAILABILITY OF PHONE SUPPORT STAFF
HP 4.09	4.13
IBM 4.00	4.02
Digital 3.88	3.84
Compaq 3.80	3.88
Sun 3.67	3.58

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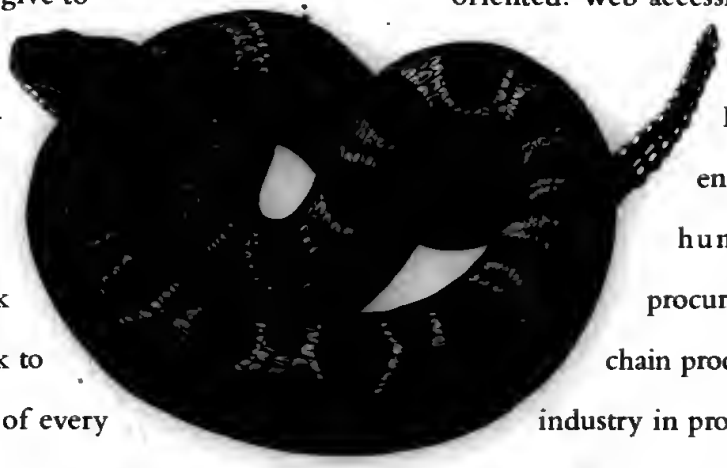

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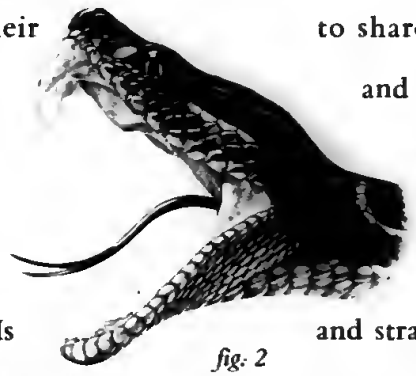

fig. 2

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Compaq's Digital acquisition

Compaq's acquisition of Digital has users both excited and apprehensive, but analysts are upbeat about the future. Digital's and Compaq's scores aren't far apart in overall satisfaction, but Digital rises to the top in emergency service and in knowledge and responsiveness of on-site support staff, areas in which Compaq ranks last.

"I'm worried about Compaq going in and messing with Digital's bullet-proof hardware package, trying to save a nickel and destroying the reliability of the existing hardware," says Thomas Tourand, MIS manager at the Atlanta Water Department. "I know Digital is good; Compaq is an unknown."

Tourand says he is concerned enough to delay a purchase of $1 million worth of hardware for six to eight months. He wants to wait to see what happens to the product lines.

Other users say they aren't worried. "I don't expect it to affect my level of service," says Digital user Ron Jones, IT manager at Marketing Research Services.

Compaq users are looking for something else from the merger. "Hopefully, it will improve them to the point where they can be a one-stop service provider," says Thomas Murphy, MIS director at Bruce McGaw Graphics. He says he hopes that Compaq will increase its technical field personnel significantly and be able to handle software support for NetWare and Windows NT. If that happens, he'll seriously consider relying solely on Compaq over using a third-party supplier.

Analysts are optimistic about the merger. The fact that Compaq already offers Digital's service to customers should ease the transition, says Eric Rocco, a senior analyst at Dataquest. He says the impending merger will be a "shot in the arm" for Compaq, and he predicts that Compaq will stick with Digital's services rather than use its own model. But he anticipates a year of distraction while adjustments are made.

"I think it is a case where one plus one equals more than two," says David Vellante, a senior vice president at IDC. Customers will get the cost and channel capabilities of Compaq combined with Digital's mature service infrastructure, he says. That will create additional competition for HP and Sun.

As for concerns about service quality, Vellante says he doesn't see the logic in Compaq decreasing service offers. "I think the last thing Compaq wants to do is gut [service]. I think they want to optimize it," he says.

As long as Compaq doesn't make any missteps and alienate large numbers of Digital employees, it's unlikely that maintenance and services will decline substantially, says Paul McGuckin, a vice president at Gartner Group.

for DOWNTIME

CONTINUED FROM PAGE 77

PRICE

IBM ranked fourth for price but climbed to first when users talked about the value they get for the dollar. The reverse was true for Compaq; the vendor rose to the top for price and dropped to fourth for value for price paid. Overall, vendors didn't get stellar scores for price.

"IBM has very good hardware. You do pay a little extra, but most of the time you are getting quality." — *Leslie Block, SDA Freight*

"The only reason we stay with Compaq is the low price." — *A Compaq user who goes to a third party for support*

Digital responds quickly, but you pay for it. — *Ron Jones, Market Research Services*

"I would like to see [HP] get their prices within reality. I just bought an HP box, and unless they get their prices in [line], it will be the last I ever buy from them." — *Ken Scottberg, Autotype Americas*

A service contract with HP entitles Michigan Property Insurance in Detroit to a response within two days, says Frank Smith, manager of operations/information services at the company. He was charged an extra $300 to get someone in before noon. "They did not show up until 11:30. That is highway robbery," he says.

"The cost is too much. The value we receive for what we pay out is not good." — *A Sun user*

	VALUE FOR PRICE PAID	PRICE
IBM	4.02	3.63
HP	3.98	3.66
Digital	3.88	3.71
Compaq	3.87	3.89
Sun	3.61	3.47

WARRANTY

Digital scored the highest ratings in all three warranty categories. Analysts point out that Digital was one of the first vendors to offer three-year warranties. Vendors received lower scores for warranty options but higher scores for coverage.

"I've never had a problem with anything out of the box yet. The fact that they warranty and guarantee everything is probably backed by the fact that the stuff is good. It is just such high-quality hardware." — *Digital user Thomas Tourand, MIS manager at the Atlanta Water Department*

"It is a pain to get the contract going, but once it is going, we never have any problems." — *Digital user Ron Jones at Market Research Services. But he adds that Digital doesn't notify him about contract expirations.*

Jim Hansen at the University of Minnesota wants to upgrade the six HP LF and LM servers that he bought two years ago to RAID 5, but he can't get the parts. He says parts for server products should be available for five years.

Downtime, page 84

	COVERAGE OF NEW WARRANTY	WARRANTY OPTIONS	LENGTH OF NEW PRODUCT WARRANTY
Digital	4.27	3.85	4.13
IBM	4.20	3.72	3.96
HP	4.15	3.78	3.80
Compaq	4.06	3.75	3.90
Sun	3.71	3.39	3.66

Quick summary of other server vendors' support

GATEWAY 2000, INC.
Standard warranties include three years on parts, one year on-site and 30 days of network operating system support. Web site contains support documents, FAQs, user manuals, drivers and an E-mail address for questions.

DELL COMPUTER CORP.
Standard service features include technical information available by phone, fax or E-mail; driver downloads; free, around-the-clock phone support for hardware problems; 30-day getting-started help line; three-year limited warranty; and extended-service options.

UNISYS CORP.
Provides online support with patches/fixes, bulletins, user communication forms, problem list entries, FAQs and solution documents. On-site support and phone support are available.

DATA GENERAL CORP.
Offers standard warranty coverage and upgrade options. Some of the support options available are on-call service and options, multivendor product services, on-site select service, per-call service, recovery services and electronic service.

NCR CORP.
NCR provides on-site and phone support with upgrades for faster response times. Remote support, software patches and maintenance releases are available. It's possible to get around-the-clock remote support coverage and 24-hour incident reporting. Web support is available in the form of documents and downloads.

NO TIME for DOWNTIME

CONTINUED FROM PAGE 77

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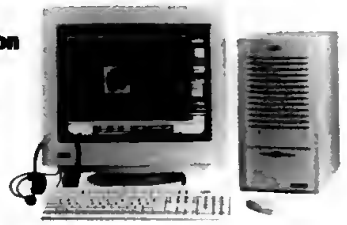

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NO TIME for DOWNTIME

CONTINUED FROM PAGE 80

REMOTE AUTOMATED DIAGNOSTICS

In this category, none of the vendors reached a rating of "good" (4.0). HP got the highest score. Compaq's average score in remote diagnostics was the lowest in the entire survey.

"Compaq ran full-blown diagnostics on the system, shutting it down for five hours. All the system needed was to be rebooted." — *Greg Keating, Olson International*

Paul Noerenberg at Tri Star Marketing says he hasn't needed HP's remote automated diagnostic capabilities. He's able to diagnose problems himself.

"Some companies may be concerned about letting these vendors through their firewalls to run these tests." — *Paul McGuckin, Gartner*

"HP has invested a lot in remote automated diagnostics, so it makes sense that they come out ahead in this." — *Eric Rocco, Dataquest*

REMOTE AUTOMATED DIAGNOSTICS	
HP	3.77
IBM	3.59
Digital	3.39
Sun	3.19
Compaq	3.00

MULTIVENDOR SUPPORT

None of the vendors scored well when it came to supporting hardware and software that they don't sell.

"Sun is too quick to say, 'It is not our problem.' When you've got multivendors, it may not be their problem, but I've got other vendors that I deal with that will still help even though it is probably not their problem. Those are the vendors that I'll stay with." — *Terry Gale, Santa Cruz Metro Transit District*

"You used to get a lot of good software support through IBM, like on Windows 95, but it seems that recently they have discontinued that and more or less refer you to call Microsoft now." — *Joe Melhiser, assistant vice president of LAN administration, Peoples Trust & Savings Bank, Inc. in Booneville, Ind.*

"They have an excellent understanding of integration of multiple systems." — *An IBM user*

"The last company you want to do multivendor support is your hardware vendor. They just want to sell their own hardware." — *David Vellante at IDC. He says IBM's Global Services is an exception.*

MULTIVENDOR HARDWARE SUPPORT	
HP	3.74
Compaq	3.70
Digital	3.58
IBM	3.49
Sun	3.28

Third-party service vendors

Roughly one-third of the survey respondents use a third party for support. But nearly 50% of the surveyed Compaq users go through a third party. Users had a lot of complaints about third parties, whether they chose the supplier themselves or the third-party relationship was managed by the server vendor.

"[HP] should give [third-party vendors] some kind of test or make them responsible in some way, shape or form, so they respond better and know what they are doing. I would prefer HP people rather than a third party." — *Frank Smith, Michigan Property Insurance*

"I don't have the feeling that [third parties] are technically competent. The quality of the technical expertise of the staff varies greatly from person to person." — **Compaq** *user Thomas Murphy, Bruce McGaw Graphics*

"**Digital** needs to go back to selling their own products instead of using third parties. I like to go directly to the manufacturer for all equipment." — *Thomas Tourand, MIS manager at the Atlanta Water Department*

Joe Melhisera at Peoples Trust & Savings Bank says he would like **IBM** to sell its systems itself. He had a problem with preinstalled software.

"In the end, it's **IBM**'s fault, because it is whoever they have selling their systems for them," he says.

WEB-BASED SUPPORT LAGS

The Web is available 24 hours per day, seven days per week, and it doesn't talk back. So it should be a great place to go for support.

Think again. According to our survey, customers aren't very satisfied with Web-based support. All of the vendors scored about average in this area. Users say it's hard to find information and to navigate. Sites are good for downloading patches and for quick-hit answers to avoid waiting on the phone. But right now, users are more satisfied with on-site and phone support as means of getting answers.

"I have to bounce around too much," says Ken Scottberg, MIS manager at Autotype Americas. He says he'd like to be able to enter a question on HP's front page and shoot right to the answer.

Digital needs to keep information more up to date on its site, says Ron Jones, IT manager at Market Research Services. "They tend to have sites that are abandoned, and they never go back and fix them," he says.

HP's site is difficult to navigate, and it would help if HP got rid of a lot of the clutter on the screen, says Jim Hansen, network manager at the University of Minnesota.

Web sites can handle the first line of support: frequently asked questions and the ability to download patches and drivers, says Paul McGuckin, a vice president at Gartner Group. "But in terms of trying to diagnose a complex problem, it is going to be a while before that is really going to be self-service," he says.

"These companies have a huge opportunity to improve that capability and cut their costs dramatically. The investing industry is proving that better phone support and Web support is the way to go," says David Vellante, a senior vice president at IDC.

SATISFACTION WITH WEB-BASED SUPPORT	
Digital	3.78
IBM	3.76
Sun	3.62
HP	3.58
Compaq	3.58

Vendors' Web plans

COMPAQ
Compaq revamped its Web site in the past few months. Customers can send E-mail to Compaq's support center and get back responses with files that contain more in-depth information than is available over the phone, says Pearse Flynn, vice president of customer service at Compaq.

SUN
Sun has SunSolve, an online collection of sources of information. The company is in the midst of putting Web front ends on some of its databases, but today, customers can log in service orders and check service order status over the Web.

IBM
IBM will make knowledge bases available this year that customers can use to input server symptoms and receive solutions, says Andrew Flanagan, call center manager for Netfinity.

DIGITAL
Digital is considering making its extranet available to customers.

HP
HP says it has no new plans right now other than to use the Web aggressively.

In Depth

BY GARY H. ANTHES

Elegance.

The Mona Lisa has it, and so does the binary search algorithm. The Golden Gate Bridge has it, as do the World Wide Web, Visicalc, Smalltalk and the U.S. Constitution. Public-key cryptography and Michelangelo's Pieta also have it. ◆ Elegance. Beauty that springs from the union of power and simplicity. ◆ Elegance in software isn't just a touchy-feely topic for ivory tower academics.

JAMES LETHER/SABA

Beautiful code is better code. It is more efficient, user-friendly, maintainable and reusable. ◆ Elegance is, unfortunately, often ignored by software developers, says David Gelernter, a computer science professor at Yale University. In his recent book, *Machine Beauty — Elegance and the Heart of Technology*, Gelernter writes, "Beauty is more important in computing than anywhere else in technology because software is so complicated. Beauty is the ultimate defense against complexity."

Elegance, page 88

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Elegance

CONTINUED FROM PAGE 85

If beauty in software marks a victory over complexity, it sacrifices nothing by way of effectiveness.

In fact, software experts say the simplest designs and algorithms often produce the most powerful programs (see story below).

SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS

Elegant code has other practical advantages. Whitfield Diffie, co-inventor of the simple but powerful public-key cryptography, says, "The first objective of code is to be comprehensible. People think of code as elegant when it is well organized."

The clarity and simplicity that are the hallmark of elegance are the allies of those who maintain code or propagate it across a product family, says Diffie, a computer scientist at Sun Microsystems, Inc. in Mountain View, Calif.

Those who care about software's aesthetics say programming is a craft, despite the efforts of some to make it an exercise in science or engineering. Diffie likens the creation of elegant code to writing poetry. "In poetry, you are often tightly constrained in format," he says. "Your objective is to express meaning and beauty within a strict set of functional requirements."

Indeed, some of the most innovative software designers draw inspiration from elegance in other realms.

Computer pioneer Alan Kay, vice president of research and development at The Walt Disney Co. in Burbank, Calif., says the U.S. Constitution is beautiful because it is simple — "parsimonious" — yet enduring. "When people ask me what's the best book to read about systems design," Kay says, "I say, 'Read *The Federalist Papers* first.' It's the justification for why the Constitution was designed the way it was. It's about how to make a machine that will keep going for a few hundred years without breaking."

Kay, who in 1970 helped found Xerox Corp.'s Palo Alto Research Center, invented the now ubiquitous overlapping window interface and many of the underpinnings of modern object-oriented programming. He was inspired by the educational needs of children and, as a by-product, designed powerful but simple computing tools for adults.

Kay worked on the team that in 1973 developed the Alto, the world's first PC. The Alto ran Smalltalk, an elegant object-oriented language that Kay invented.

Besides the Constitution and children, Kay is inspired by the arts. A former professional jazz guitarist, composer and theatrical designer, Kay is now an amateur classical organist.

BLOATWARE DON'T FLOAT

American Management Systems, Inc. in Fairfax, Va., employs 2,300 programmers. Company officials say Thomas Sorgie is one of the best.

Sorgie creates Web-based transaction-processing software for complex banking applications. His code must run on remote users' client machines, not on big corporate servers. So bandwidth, disk space and processing power limitations are paramount. "Bloatware" isn't an option, he says.

According to his supervisor, Sorgie used native C++ and Java to code a complex letter-of-credit application — complete with security features and a reporting module — in just 450K bytes, less than half of a floppy diskette. The same application written earlier for Windows in Powersoft's PowerBuilder occupies 30M bytes when installed.

"We try to keep things tiny and understandable," Sorgie says. "By using simple and elegant metaphors in your programming, you can migrate your code from person to person. We bring people in to our group and have them productive in a week."

Sorgie says he's obsessed with the aesthetics of his programs, "right down to how the dots are laid out in the code, how the screen is arranged, how everything is named." He says he loves art and music but has no artistic talent.

"Programming can be done a jillion ways," says astronomer, author and computer aficionado Clifford Stoll. "It can be done with brute force, with pizzazz, speed, grace, with elegance, with a sense of levity or with dead seriousness."

According to Stoll, the following are elegant items.

- **The Web.** "One of its beauties is we don't mail megabyte files to each other — we just pass along a URL."
- **The Visicalc spreadsheet.** "It was an elegant solution, beautiful and with great power. Spreadsheets have survived for almost two decades now without much change."
- **3Com Corp.'s PalmPilot handheld computer.** "It answers a single need — for a pocket-size address book — elegantly and without warts."

Software users seek elegance not in the underlying code, which they rarely see, but in the user interfaces. David Pensak, a senior research fellow at Du Pont Co. in Wilmington, Del., says the combination of power and simplicity strongly influence his buying decisions.

"Microsoft's Office 98 is like a Swiss Army Knife with 145 blades, and there's a three-week course on how to use the fingernail trimmer," Pensak complains. He doesn't use 99% of the features in Windows, he says, but they consume huge computer resources and provide a breeding ground for bugs.

Pensak says he tries to judge the elegance of programmers' thinking in job interviews. "I'll give them a blackboard project and ask, 'How would you design software to do that?' If their design shows they come from the school of 'spaghetti' code, I say, 'Thank you, no.' "

"Good programmers know what's beautiful, and bad ones don't," Gelernter says. He says programmers interviewing for jobs should be given a "software aesthetics" test in which they are shown different code fragments that solve the same problem and then are asked to rate them for elegance.

Magazine columnist Jon Bentley, a programmer at the Bell Labs unit of Lucent Technologies in Murray Hill, N.J., and author of the book *Programming Pearls*, says elegance can be learned through imitation and practice. He advises programmers to examine the code of the best programmers and study how their code evolved.

And Bentley, too, sounds the mantra of simplicity.

Quoting French author and aviator Antoine de Saint-Exupery, he says, "A designer knows he's achieved perfection not when there is nothing left to add, but when there is nothing left to take away."

Elegance is a trait that should be ardently pursued when making fundamental architectural decisions that will span multiple products or applications, says William Scherlis, a computer science professor at Carnegie Mellon University in Pittsburgh. "But if you're trying to put a lapidary polish on a piece of code that is a tiny or insignificant piece of a very large system, then you're just sacrificing productivity."

Pensak says programmers should spend more time thinking, and less time coding. "The fastest code in the world to develop," he says, "is the code you didn't have to write." □

Anthes is Computerworld's editor at large. His Internet address is gary_anthes@cw.com.

A search for elegance, an elegant search

"The first time a computer science student learns about binary search, it's often a striking experience," says William Scherlis, director of the Information Technology Center at Carnegie Mellon University. "It's a very tiny algorithm, yet it's so powerful, so efficient and so simple."

The search finds an item, or key, in a list of items arranged in order.

For example, search for 7 in the sequence 1, 3, 4, 6, 7, 9, 10, 11, 13, 14, 16, 18, 22.

The most obvious algorithm, which Scherlis calls the "naive" approach, is to scan the list from beginning to end, checking each number to see if it matches the key. In the worst case, you look at every item in the list. On average, you look at half.

But in a binary search, you look first at the middle number. If it matches the key, you're done. If the middle number (10, in the example) exceeds the key (7), you discard the top half of the list; if it is less than the key, you discard the bottom half.

The process is repeated until the key is found or is shown not to be present. In the example, the list first shrinks to 1, 3, 4, 6, 7, 9, then to 6, 7, 9. The key is found on the third trial.

The magic is that the binary search whacks off half the list on each trial, while the naive algorithm eliminates one item at a time.

If the list had 1,000 items, the naive algorithm would look at 500 items on average, while the binary search would look at just 10. For a list of 1 million elements, the naive search would examine 500,000 elements on average; the binary search would look at 30. "The algorithm is elegant not only because it is fast and simple, but because it has also suggested a wide range of similar algorithms for solving related problems," Scherlis says. — Gary Anthes

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ILLUSTRATIONS BY TIM WEBB

An information systems manager in Oklahoma is at her wits' end. Her boss, the chief financial officer, put all year 2000 programming on hold while the company evaluated new enterprise resource planning (ERP) software.

BY LESLIE GOFF

That was last June. The ERP proposal is still languishing in the approval process.

A former IS supervisor at an insurance company in Kansas left his job after the company repeatedly ignored his suggestions for updating its operations, even in the face of shipping market share.

When management finally signed off on a Windows NT network for its 200 employees, it wouldn't finance any strategic application development. After a year, only 30 employees are on the network, and the company is losing 3,000 policyholders each month.

And a middle manager at a hospital in New Jersey has been working on the same proprietary, mainframe-based clinical IS implementation for two and a half years. He still sees no light at the end of the tunnel.

He also worries that his skills are falling behind and that even when the system is finished, users may never buy in to it.

All those examples illustrate the continued sources of job dissatisfaction levels reported by both IT managers and professionals. Too many feel overworked, understaffed, underappreciated and often disconnected from the real needs and mission of the company.

"There's still a feeling that it's us and them," says a PC specialist who provides help desk support for the field sales force at a health care products manufacturer in Massachusetts. "There's this idea that if you're in IS, you are only a techie,

Job satisfaction, page 93

Report card on satisfaction

IT senior managers, middle managers and professionals grade their levels of satisfaction for key job and career factors:

	1996 GRADE	1997 GRADE	1998 GRADE	NOTES
Salary	C	B-	C-	Starting to slip again. Work harder on this.
Opportunity for advancement	D-	D	D	Still struggling. Needs great improvement.
Use of new technologies	C+	B	B	Keep up the work.
Challenging assignments	B	D+	B	Much improved. Congratulations!
Career/goals planning	N/A	N/A	C	We can do much better here.
Access to training	C	C	C	Still having trouble mastering this.
Manageable job stress	A-	B+	B+	Good but can be improved.
Overall job satisfaction	B-	B	B-	Generally good but can be much better.

Source: These traditional letter grades are the matched numerical values for very satisfied, somewhat satisfied, or neutral responses based on those question areas

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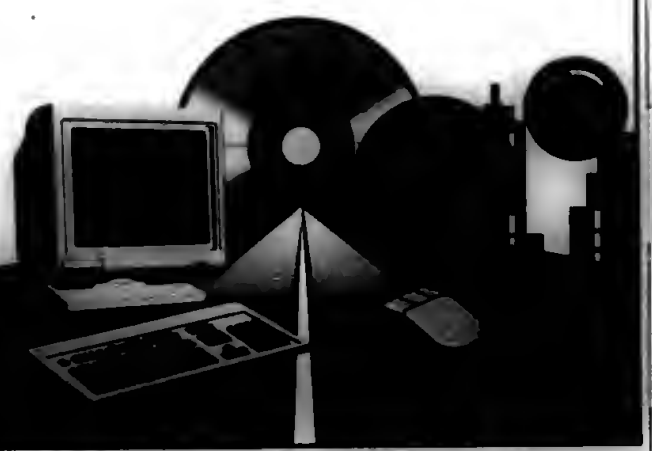

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EOE

COMPUTERWORLD'S ANNUAL Job Satisfaction SURVEY

CONTINUED FROM PAGE 91

and business planning falls to a different group. There's been a concerted effort to merge the two more, but I'm not sure that it's been very successful."

And the attitudes only get worse. Many information technology professionals we interviewed for *Computerworld's* annual Job Satisfaction Survey say business decisions and technology strategy at their companies often aren't on par. Many IT professionals describe general management as frequently pigheaded, shortsighted, bureaucratic and technologically unsophisticated.

The good news: Most IT professionals still like their jobs. Far more often than not, they are glad they pursued an IS career. But when it comes to the individual ingredients that make for a satisfactory company, job and career, IT professionals give their employers mixed grades.

Despite all the complaints, of the 562 IS executives, managers and staff members who participated last month in the fifth annual job satisfaction poll, 78% reported they are either "very satisfied" or "somewhat satisfied" with their jobs.

Conversely, 65.4% were "very happy" with their decision to work in IS, and 26.6% were "somewhat happy," even when they weren't content with their current work situations.

In interviews, the respondents who are most gratified on the job are those who have one foot in IS and one in business strategy.

An example: a liaison between the legal department and the IS security staffer who is responsible for intellectual property protection for a footwear manufacturer in the Northeast. That respondent says she had rose-colored glasses when she was hired but soon realized her boss had no concept of the relationship between IT

Difference in the sexes

Overall, women in IT tend to be much less satisfied (or more dissatisfied) than men on a variety of key issues

SATISFACTION WITH SALARY

	WOMEN	MEN
Very satisfied	11%	17%
Somewhat satisfied	35%	40%
Neither satisfied nor dissatisfied	13%	17%
Somewhat dissatisfied	29%	20%
Very dissatisfied	12%	6%

CONNECTION BETWEEN PAY AND PERFORMANCE

	WOMEN	MEN
Very satisfied	7%	14%
Somewhat satisfied	29%	32%
Neither satisfied nor dissatisfied	13%	19%
Somewhat dissatisfied	33%	26%
Very dissatisfied	18%	9%

OPPORTUNITY FOR ADVANCEMENT

	WOMEN	MEN
Very satisfied	8%	12%
Somewhat satisfied	25%	28%
Neither satisfied nor dissatisfied	21%	31%
Somewhat dissatisfied	27%	24%
Very dissatisfied	19%	7%

SATISFACTION WITH JOB

	WOMEN	MEN
Very satisfied	19%	32%
Somewhat satisfied	53%	43%
Neither satisfied nor dissatisfied	6%	8%
Somewhat dissatisfied	15%	13%
Very dissatisfied	7%	4%

FACTORS THAT WOULD INCREASE SATISFACTION

	WOMEN	MEN
Salary increase	62%	60%
Performance bonuses	57%	49%
Use of new technologies	45%	32%
Opportunities for advancement	44%	37%
Freedom to telecommute	44%	25%

*Multiple responses allowed

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CONTINUED FROM PAGE 93

COMPUTERWORLD'S ANNUAL Job Satisfaction SURVEY

and corporate security. After he left, her job satisfaction increased 100%, she says.

"It's not that he has the technical knowledge," she says of her new supervisor, "but he has the business knowledge, the management skills and the political savvy to understand how IT relates to this mission."

IS professionals reported in the survey that they understand their company's business mission (90.1%), that they feel they can influence IS decision-making (92.7%) and that they have an impact on day-to-day success (86.6%). But a different picture comes through in interviews.

"It's hard to report to someone who doesn't have a clue what you're doing, even when you try to explain it," says the IS manager in Oklahoma.

At a service company in Columbia, S.C., the IS manager complained that the executive in charge of IT wasn't from IS ranks. "I don't know why they think it's OK to put a non-IS person in charge of IS," he says. "They wouldn't do that in any other area. They wouldn't make someone with no finance experience the chief financial officer."

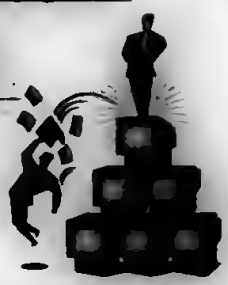
Besides creating daily job frustrations, management's lack of understanding toward IS has created other, more long-term disappointments for IS professionals. That's particularly true for those at staff and middle-management levels: a dearth of training opportunities and few prospects for advancement.

Of the 134 survey respondents who indicated they aren't working at their full potential, 12% attributed the reason to "lack of opportunity/challenge/advancement," and 11% said, "Need more training."

Job satisfaction, page 97

Generation gaps

Satisfaction levels can vary dramatically according to the age of IT professionals



CONNECTION WITH PAY AND PERFORMANCE

	<35	35-44	45-54	>55
Very satisfied	11%	12%	15%	10%
[illegible]	29%	30%	32%	42%
Neither satisfied nor dissatisfied	25%	14%	16%	17%
[illegible]	28%	32%	26%	14%
Very dissatisfied	7%	12%	11%	17%

LOYALTY TO ORGANIZATION

	<35	35-44	45-54	>55
Very loyal	44%	45%	55%	53%
Somewhat loyal	49%	43%	31%	37%
A little loyal	6%	9%	9%	8%
Not at all loyal	1%	3%	5%	0%

UNDERSTANDING OF BUSINESS MISSION FOR IS

	<35	35-44	45-54	>55
Very satisfied	24%	29%	30%	33%
[illegible]	39%	30%	44%	37%
Neither satisfied nor dissatisfied	23%	21%	15%	18%
[illegible]	10%	19%	9%	10%
Very dissatisfied	4%	1%	3%	2%

INTEREST IN JOBS ELSEWHERE

	<35	35-44	45-54	>55
[illegible]	17%	15%	22%	14%
Currently seeking a job change	9%	11%	8%	8%
[illegible]	60%	59%	58%	48%
No desire to change jobs	12%	11%	15%	29%

REASONS FOR CHANGING JOBS

	<35	35-44	45-54	>55
Compensation	78%	75%	69%	65%
[illegible]	49%	52%	73%	59%
Technology direction of IS dept.	43%	39%	30%	35%
[illegible]	41%	40%	47%	44%
Quality of boss	20%	28%	29%	41%

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COMPUTERWORLD'S ANNUAL Job Satisfaction SURVEY

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When asked what factors would increase their job satisfaction, the survey respondents ranked availability of training the third highest asset, after performance bonuses and salary increases.

The project manager at the New Jersey hospital says he was able to attend only two training classes in eight years. The tide turned last year, when the hospital sent him to a suite of classes on the new clinical information system. But the classes all focused on a very specific function: creating special interfaces among the various system modules.

The former IS manager at the insurance company had to learn how to implement the NT network by reading books and just plunging in. He lost six of 12 IS staff members in a year, partly because they weren't getting to develop new skills.

As for stifled career growth, the PC specialist at the health care products manufacturer in Massachusetts says that despite her 14-year tenure at the company and 11 years of working directly with field sales, she hasn't been able to break in to either the company's IS department or business management. She began her career at the company in bookkeeping, and actually managed the department, but no one is willing to consider that experience, she says.

"My greatest drawback is actually a positive: I know more about our field sales operation than anyone else, and I think that pigeonholes me," she says. "I would like to be in a more strategic position, but instead I am more tactical. I'm considered a tech person, and we're not yet at a point where business managers feel that IS has real input into their plans." □

Goff is a freelance writer in New York.

The Price of success

Senior IT managers report much higher stress levels but greater satisfaction with control of their careers

STRESS LEVEL OF YOUR JOB

	SENIOR IS EXEC.	IS MIDDLE MANAGER	IS PRO
[illegible]	43%	38%	20%
Somewhat stressful	52%	55%	59%
[illegible]	4%	7%	20%
Not at all stressful	1%	0%	1%

ABILITY TO INFLUENCE DECISIONS THAT AFFECT YOU

	SENIOR IS EXEC.	IS MIDDLE MANAGER	IS PRO
[illegible]	43%	22%	9%
Somewhat dissatisfied	44%	55%	45%
[illegible]	5%	7%	28%
Somewhat dissatisfied	5%	14%	18%
[illegible]	3%	2%	0%

FACTORS THAT CONTRIBUTE MOST TO STRESS

	SENIOR IS EXEC.	IS MIDDLE MANAGER	IS PRO
[illegible]	11%	12%	15%
Poor interpersonal relations at work	13%	11%	11%
[illegible]	11%	7%	8%
Conflicts between personal and professional roles	11%	16%	12%

WORKING TO FULL POTENTIAL?

	SENIOR IS EXEC.	IS MIDDLE MANAGER	IS PRO
[illegible]	50%	44%	32%
No	50%.	56%	68%

STRESS LEVEL COMPARED WITH A YEAR AGO

	SENIOR IS EXEC.	IS MIDDLE MANAGER	IS PRO
[illegible]	47%	55%	40%
About the same	42%	38%	44%
[illegible]	11%	7%	16%

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Systems Consultant. Provide services to clients in design & development of business & systems applications to support company activities, design & develop PIN Generation Systems, Purchase Refreshability System, & other systems for office management using Oracle, SQL*Plus, PL/SQL, PowerBuilder, PRO*C, Windows API, & Tandem Server; develop modules & databases, provide module security measures, create Vendor & Tandem files & transfer to local drive networks, & support pre-paid telephone card usability. $48,000/yr 40 hrs./wk. B.S. in Computer Sc., or Computer Eng., or Math, or Bus. Admin or Commerce B.S. may be equivalent degree. May work at unanticipated client sites. 2 yrs. exp. req'd in job offered or 2 yrs. related exp. as Systems Analyst or Programmer Analyst. Apply in person to the local KS Job Services Career Center, or send resume to the KS Dept. of Human Resources, KS1408846, ATTN: Jane Burbridge, 401 SW Topeka Blvd., Topeka, KS 66603-3182. NO PHONE CALLS. applicants must have legal authority to work permanently in the U.S.

Manager Information Systems - Manage overall operations of Information Systems Dept. Int'l systems analysis, forging, & computer operations. Resp. for MAN-MAN Mfg System, e-mail, personal computers & associated software, payroll system, office automation & security system. Establish work assign & schedule work & review work of dept's employees. Direct training of dept's employees & participate in decisions concerning staffing levels with dept. Advise senior mgmt regarding info system needs & capacity & mgmt acquisition. Has control over Information System Department's budget. Req Associate's or equivalent in Comp Sci or related field & 7 yrs exp in job offd or Business Computer Systems Analyst. 7 yrs exp must involve design, dvlpg & implmtg automated business info systems & 2 yrs to exp must involve MAN-MAN Manufacturing System & ReportGen. Report Writer. 40hr/wk, 9-5 M-F, OT n/a, $56,950/yr. Job in Fairview Heights area. Must have proof of legal authority to work permanently in US. No calls - send 2 copies of both resume & cover letter to: Illinois Dept. of Employment Security, 401 S. State St - 7 North, Chicago, IL 60605, Attn: Lori Bolisa, Ref # V-IL 16770-B. An employer paid ad.

SOFTWARE ENGINEER: Design and develop relational databases for Petroleum master and store automation in UNIX, WINDOWS, and distributed computing environment; Develop, upgrade and implement Informix databases using SQL, C, C++ and Visual Basic; Monitor and tune existing databases to make sure that it is continuing to meet clients specifications; Support databases running with client servers and distributed computing skills and system and networking administration. Develop database management programs including data analyses, data processing, and related algorithms design. M.S. in Computer Science, Engineering or Applied Mathematics. 3 years of related relational database development experience in distributed network environment using ANSI SQL, Informix relational database, Visual Basic, UNIX, and C. Yearly salary: $39,500. 40 hours per week. Apply in person or send resume to Oklahoma State Employment Service Office, 626 Kansas Avenue, Chickasha, Oklahoma 73018 (OK67600). Please refer to Job Order #310108. Ad Paid by an Equal Opportunity Employer

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SAP Consultant needed for computer software development and consulting firm located in Houston, Texas. Job duties include: Prototype, develop, implement and test functional specifications for SAP R/3 modules specifically Materials Management. Perform module configuration. Perform business process re-engineering, function-al design, data mapping, functional mapping and setting configuration tables. Design data interfaces, data migration and reconciliation for SAP modules. ABAP/4 programming and development. Convert master data from legacy systems to SAP. Applicant must have B.S. degree in Computer Science, Mathematics or Business. Applicant must also have 4 yrs. exp. in the job duties described above or as a Systems Analyst or Consultant which includes 4 yrs. total exp. including 2 yrs. of SAP implementation in Materials Management module and ABAP/4 programming. 40hrs/wk, 8:00 am - 5:00 pm, Mon-Fri, $84,000/yr. Apply to the Texas Workforce Commission, Houston, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701. JO # TX0241884. Ad Paid by An Equal Opportunity Employer

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Network Specialist

Major duties include the installation, problem solving, management and maintenance of the campus local area network and file. Provide assistance in supporting the campus network hardware which includes network wiring, intelligent hubs, switches and routers. **Requirements:** Bachelors degree in Computer Science; 1 year experience in microcomputer client environment to include: support of NetWare 3.12, and Ethernet wiring, Unix support, TCP/IP, Hubs, Switches, Routers, management and maintenance. **Salary:** $34,000/year

Must have proof of legal authority to work permanently in the United States. Send resumes with Social Security number to Indiana Department of Workforce Development, 10 N. Senate Ave., Indianapolis, IN 46204, attn: D. Gordon, I.D. number 3450689

Application Programmer: Programs, tests, implements, debugs and modifies business database and decision support systems application program. Performs programming for interface configurations data structure development and security schemes to insure appropriate integration of software into various information systems. Programs and tests application support software to solve Client/Server problems and insures that programs are appropriately configured to be installed in various networks and are capable being used in alternative telecommunication systems such as Internet and Intranet. Performs appropriate programming of Microsoft Access, Power Point, Macro programming to MS Excel in conjunction with an Oracle relational database using Visual Basic and C Language. Requires Bachelor's degree in Computer Science or Mathematics. Also requires five months experience in the job to be performed or five months experience as a Research Assistant, Computer Applications. If experience in related field, entire experience must include programming in Visual Basic and C Language to implement Power Point, MS Excel, including Macro programming and Microsoft Access for implementation in an Oracle relational database installed in a Client/Server Network environment. Hours: 9:00 a.m. - 5:00 p.m. 40 hours per week to $40,000.00 per year salary. Must have proof to legal authority to work permanently in the U.S. Please send two copies of resume and cover letter to: Illinois Department of Employment Security, 401 S. State Street - 7 North, Chicago, IL 60605, Attention: Brenda Kelly, Reference #V-IL 16381-K, AN EMPLOYER PAID AD. NO CALLS.

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Applicants should send resumes with social security numbers to the **Indiana Department of Workforce Development, 10 North Senate Avenue, Indianapolis, Indiana 46204-2277, Attention: D. Gordon, I.D. #3458591.**

Senior SAP/Management Consultant. Analyzes and re-engineers business software processes in the areas of Finance and Controlling; directs the design, configuration and integration of SAP software for the FI/CO modules and the interfaces with the Logistics modules; plans, develops and reviews project progress; determines programming needs for functional enhancements and writes the functional and technical specifications; provides training for project team; M.S. in Computer Science Management; 5 yrs. exp. in the job offered or in SAP Project Management. Must have 5 yrs. exp. with SAP FI, CO, AM and PS modules; 5 yrs. exp. with SAP CO modules and the interfaces with MM and PP; 5 yrs. exp. with intercompany postings/transfers, multi-currency and other issues related to multi-national companies. $90,000/yr.

Senior SAP Consultant. Analyzes and re-engineers business software processes of client companies in the software logistics area; directs the design, configuration and integration aspects of SAP R/3 software for the SD and MM modules; plans, develops and reviews project progress; determines programming needs for functional enhancements and writes the functional and technical specifications; provides training for project team. M.S. in Computer Science, Engineering or Math related field; 2 yrs. exp. in the job offered; Must have 2 yrs. exp. in the implementation of SAP R/3 software and SD and MM modules; $90 000/yr.

SAP Systems Analyst/Developer. Designs and develops enhancements and interfaces to SAP modules FI/CO and PP/MM using ABAP/4 development workbench and SAPscript. B.S. in Computer Science, Engineering or Math-related field; 2 yrs. exp. in the job offered; Must have 2 yrs. exp. with SAP Software, including FI/CO and MM/PP modules and 2 yrs. exp. with ABAP/4 programming language and SAP and SAPscript; $80 000/yr. Send resumes (no calls please) to Barnhof Consulting (America), Inc. 700 North Water Street, Suite 940, Milwaukee, WI 53202

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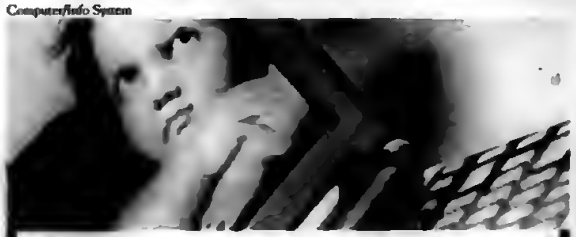

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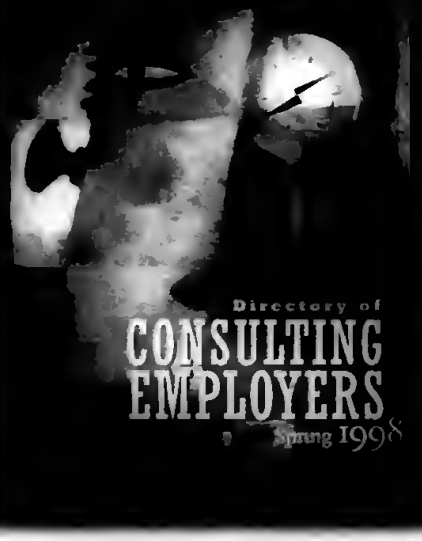

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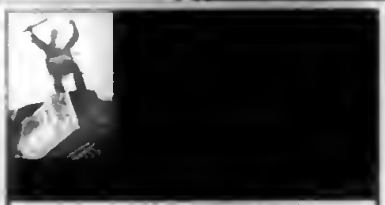

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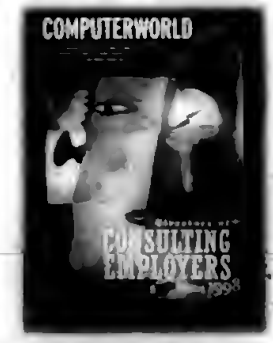

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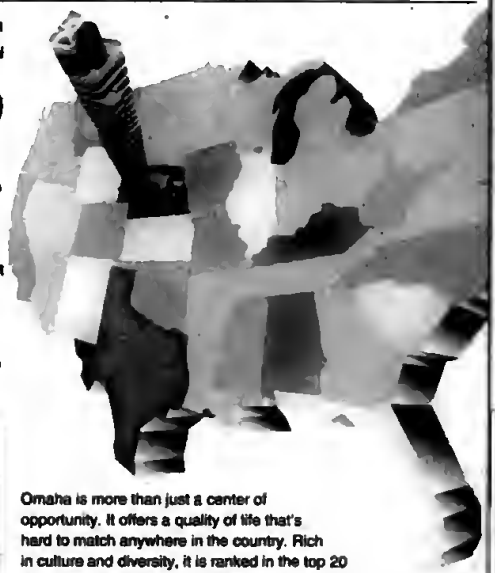

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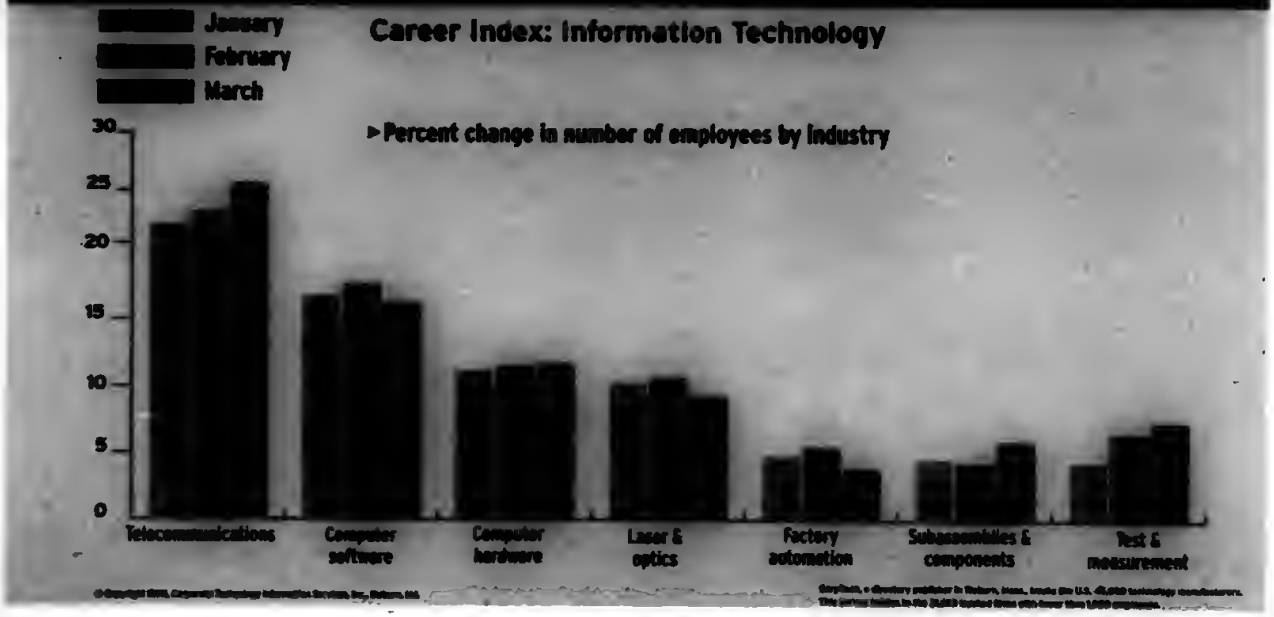

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The Week in Stocks

Gainers

PERCENT

Network Comp. Inc. (H)	64.0
Quantum Systems Inc. (H)	61.5
Starbucks Coffee Corp.	37.5
Symbios Inc. (H)	36.1
Elektrix	32.3
Open Market Inc. (H)	29.0
Exodus Inc. (H)	28.7
Pictureth Corp.	20.7

DOLLAR

Exodus Inc. (H)	13.44
Network Comp. (H)	14.25
EMC Software Inc. (H)	12.19
Yahoo! Inc. (H)	11.88
SCI Corp. (H)	7.25
Netscape Comm. Corp.	6.44
Open Market Inc. (H)	6.06
Texas Instruments	5.69

Losers

PERCENT

Quantum Corp. (H)	-41.18
Symbol Tech. (L)	-29.17
Seagate Technology	-25.00
Quantum Corp.	-24.14
Micron Electronics	-23.08
Gateway 2000 Inc. (H)	-19.44
Seagate Technology (H)	-18.42

DOLLAR

Quantum Corp. (H)	-8.88
Seagate Technology	-6.38
Micron Electronics	-5.88
Gateway 2000 Inc. (H)	-5.69
Seagate Technology (H)	-4.63

INDUSTRY ALMANAC

Millennium hopefuls

What a difference 18 months make. A year and a half ago, investors were intrigued by the niche vendors that make software tools to fix year 2000-related bugs. Market watchers are now seeing a shakeout that could predict some winners and losers.

The company that many analysts and investors pegged as an early year 2000 winner was Viasoft, Inc. (Nasdaq:VIAS). The Phoenix company makes Cobol assessment and other analysis tools and is no longer favored by observers.

Taron Chandra, an analyst at the New York brokerage Pauk, Ziegel & Co., says Viasoft was a market leader in 1996, but users now are looking for more than the problem-assessment software Viasoft was known for. That and Viasoft's recent revenue shortfalls from miscalculated European sales spell a downturn in the company's fortunes (see chart).

Peritus Software Services, Inc. (Nasdaq:PTUS), which makes a data-separation tool, has also seen analysts' outlook turn to frowns. Max Arnold, an analyst at H. C. Wainwright & Co., a Boston-based investment house, says Peritus expanded its business too quickly and invested a lot of resources in product development efforts.

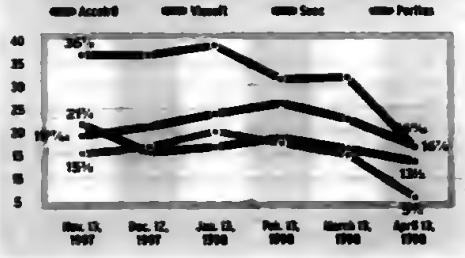
Two small year 2000 software tools companies have garnered better reviews. Accelerated Technology Corp. (Nasdaq:ACLY) in Denver is the only company focused on the VAX platform, Arnold says, "which is a quiet but interesting market." And Seec, Inc. (Nasdaq:Seec) in Pittsburgh, another Cobol analysis tool maker, "has geared their development efforts to the correct market opportunities," Chandra says.

Remember: The revenue streams from assessment and testing tools will dry up after Jan. 1, 2000.

"No tool company with 50% of their revenue [in year 2000 sales] will easily make a sudden transition to something else," Chandra says. — Stewart Deck

YEAR 2000 WOES

This year hasn't been rosy for year 2000 tool vendors



Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
COMS	50.69	24.00	3 COM Corp	33.00	6.06	2.1
AIT	50.25	25.94	AMERITECH Corp	46.75	-0.19	-0.4
ASND	80.00	22.00	Ascend Communications	42.19	1.63	4.0
T	68.88	30.75	AT & T	66.94	1.06	1.5
BNYM	10.75	1.19	Banyan Systems Inc. (H)	9.81	3.72	91.0
BAY	41.88	13.63	Bay Networks Inc	23.25	4.00	20.1
BEL	100.00	68.11	Bell Atlantic Corp	95.25	1.63	1.7
BLS	68.69	39.75	BellSouth Corp	66.75	1.81	2.7
BRKT	21.88	9.25	Brooktrout Technology (H)	21.69	2.38	13.4
CS	46.38	12.63	Castelton Systems	13.31	-0.38	-2.7
CCBM	21.88	8.56	Centigram Communications	13.44	1.13	9.1
CSCO	71.94	30.19	Cisco Systems Inc.	30.13	3.00	4.5
CMNT	8.13	3.31	Computer Network Tech	4.38	-0.00	1.4
CNCX	35.00	7.88	Concentric Network Corp	21.25	-0.81	-3.1
DIGI	52.75	16.50	DSC Communications	17.38	0.63	3.3
FORE	21.81	10.88	FORE Systems Inc.	17.88	-0.50	-2.8
GDC	9.50	3.25	General Datacomm Inds	3.25	-0.11	-2.2
GSN	53.00	36.38	General Signal Networks	43.50	1.63	3.9
GTE	69.38	48.38	GTE Corp	80.94	1.00	1.7
LU	75.75	25.81	Lucent Tech	69.63	0.88	0.7
MADGF	8.19	3.25	Madge Networks NV	5.88	1.03	19.3
MCIC	53.00	25.31	MCI Communications Corp (H)	31.50	1.69	3.4
NETM	5.25	2.06	NetManage Inc	3.00	-0.06	-0.8
NTRX	3.00	0.63	Netrix Corp	2.38	0.06	0.0
NCTH	14.50	5.88	Network Computing Devices	9.63	-0.25	2.5
NWK	22.38	11.63	Network Equipment Tech	19.25	0.63	3.4
NN	69.38	18.94	Newbridge Networks Corp	27.38	0.31	1.1
NT	86.44	22.44	Northern Telecom Ltd.	64.50	3.31	3.4
NOVL	11.13	9.88	Novell Inc.	10.33	0.38	0.8
ODSI	16.50	5.19	Optical Data Systems Inc	5.81	0.12	2.2
PCTL	14.13	5.63	Picturetel Corp	7.47	1.38	20.1
PTCH	3.50	0.97	Proteon Inc.	1.16	0.00	2.8
RACO	4.12	1.00	Racotek Inc.	3.63	-0.25	-6.5
RADS	29.38	7.00	Radiant Systems Inc.	24.00	1.94	8.8
RTL	7.63	3.38	Retix (H)	5.13	-0.75	12.8
SBC	46.38	25.00	SBC Communications	41.56	-0.13	-0.3
SFA	24.94	10.00	Scientific Atlanta Inc	19.81	1.25	6.7
SYNN	16.44	5.88	Synoptics Comm	9.81	-0.13	1.3
FONS	75.63	42.25	Sprint Corp	30.19	2.75	4.1
QWST	41.00	13.19	QWest Communications	37.69	1.88	4.6
SMSC	18.13	4.00	Standard Microsystems Corp	10.75	1.21	13.9
USW	68.00	21.13	U.S. West Inc	53.75	-0.00	-0.1
XIRC	16.38	7.56	Xircom	14.75	0.19	1.3
XYLN	31.31	12.38	Xylan Corp (H)	29.50	3.06	11.9

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
AAPL	39.69	12.75	Apple Computer Inc. (H)	27.75	2.31	9.1
CPQ	39.75	14.38	Compaq Computer Corp	25.75	1.19	4.8
DELL	21.94	1.79	Dell Computer Corp	8.744	-0.38	-0.6
GTW	49.25	19.38	Gateway 2000 Inc. (H)	46.19	1.50	2.2
HWP	72.94	46.12	Hewlett Packard Co.	63.63	2.00	4.4
MUEI	25.38	8.44	Micron Interchannels Inc.	14.38	0.44	3.1
NBNY	74.00	48.63	NEC America	54.06	4.88	1.3
SGI	30.31	10.94	Silicon Graphics	13.63	1.94	12.4
SUNW	53.31	25.88	Sun Microsystems Inc.	41.50	1.69	4.2

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
DGN	37.94	19.38	Data General Corp	16.50	-0.81	-4.7
DEC	62.63	25.50	Digital Equipment Corp	53.00	1.38	2.5
IBM	131.50	63.38	IBM	107.19	1.13	1.1
MOCD	2.75	0.88	Microdyn Data Inc.	0.88	0.31	2.7
NCR	45.38	25.63	NCR Corp	35.00	0.88	2.1
PRCM	18.63	0.75	ProCom Technology Inc.	0.66	0.00	11.9
SQNT	33.25	14.63	Sequent Computer Sys.	16.00	-0.75	-0.2
TXIM	6.06	2.22	Texas Micro Inc.	3.66	-0.06	1.7
SDA	60.75	30.75	Stratus Computer Inc.	44.06	1.75	4.1
UIS	21.88	5.88	Unisys Corp (H)	21.25	3.44	13.0

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
ADBE	33.13	33.38	Adobe Systems Inc.	46.75	5.38	7.4
AMSWA	19.63	5.38	American Software Inc.	8.13	0.06	0.6
APLX	12.50	3.13	Applix Inc.	8.00	0.13	2.1
ARSW	53.25	27.00	Arbor Software	48.19	2.63	5.8
ASDT	15.88	6.00	Ardent Software (H)	39.88	9.88	2.5
ASFC	35.25	17.75	Asta Corp (H)	34.00	2.25	7.1
AUSK	53.13	30.13	Autodesk Inc.	45.38	2.63	6.2
BMCS	95.31	39.63	BMC Software Inc. (H)	91.31	12.19	14.7
BOOH	25.09	13.13	Boole and Babbage	24.09	0.00	0.0
BORL	12.19	9.88	Borland Int. Inc.	10.06	1.13	12.6
BOBY	36.75	6.63	Business Objects	13.69	0.13	0.9
CAYN	6.25	0.94	Cayenne Software Inc.	2.38	-0.72	24.0
CNTE	3.31	0.88	Centura Software	1.38	0.06	3.6
CHKPF	30.50	18.34	Checkpoint Software	19.00	1.38	3.2
COGNF	35.86	17.63	Cognos Inc.	27.56	1.19	4.1
CA	58.63	27.06	Computer Associates	56.00	-0.58	1.5
CPWR	52.38	15.88	Compuware Corp	52.50	5.00	10.2
CSRE	14.00	8.25	Cosmare Inc.	7.50	-0.25	3.2
COSFF	6.69	1.46	Cosmi Corp	2.88	0.06	2.2
DWTI	5.38	2.13	Datawave Technologies Inc	1.86	0.06	1.8
FFLE	51.63	10.36	Fourth Corp	51.50	2.94	9.0
FRTE	21.75	4.94	Fortè Software	7.75	0.00	0.0
FTPS	9.88	1.38	FTP Software Inc.	2.75	-0.19	-6.4
GPSI	39.75	30.50	Great Plains Software Inc (H)	39.25	1.38	4.0
HUMC	54.25	22.00	Humanware Comm Ltd.	39.00	4.25	12.2
HYSW	46.25	11.00	Hyperion Software Corp	40.50	1.25	2.6
IIRC	30.06	11.75	Information Resources	17.38	1.22	7.6
IFMR	12.44	4.00	Informix Corp	8.13	0.38	4.4
INGR	14.19	6.25	Intergraph Corp	6.75	0.88	11.1
LEAF	4.06	0.81	Interleaf Inc.	1.06	0.06	1.8
IFSI	21.25	8.25	Infinity Inc.	16.25	-0.00	3.0
INTU	53.38	21.25	Intuit Inc. (H)	52.53	3.78	1.8
JDEC	42.38	24.88	J.D. Edwards Co. (H)	40.75	2.19	5.7
TLC	27.13	5.63	Learning Co. (The) (H)	24.94	1.25	4.8
LGWK	38.06	4.13	Logic Works (H)	13.13	0.94	6.6
MAPS	64.25	9.88	Mapinfo Corp	12.75	-0.25	1.9
MATH	4.63	2.19	MathSoft	3.88	-0.47	11.3
MENT	13.13	6.50	Mentor Graphics	3.88	-0.94	-6.2
MFGY	60.63	20.63	Micro Focus	48.00	2.63	5.8
MCSI	14.06	4.38	Microcrest Inc.	12.38	-0.75	5.6
MSFT	93.06	48.13	Microsoft Corp	91.63	7.31	2.6
OBJS	5.25	0.44	Object Design Inc. (H)	4.69	0.19	4.2
OMTL	15.06	8.25	Oratrix Ltd.	12.75	0.25	2.0
ORCL	43.13	17.75	Oracle Corp	27.25	0.44	1.6
PMTC	26.25	18.81	Parametric Technology (H)	33.50	3.94	10.9
PSFT	56.38	45.50	Peoplesoft	54.75	2.75	5.3
PTEC	18.38	11.00	Phoenix Technologies	12.00	-0.00	-0.2
PSQL	25.06	9.88	Platinum Software	23.19	2.23	30.7
PLAT	31.13	10.56	Platinum Technology	26.63	1.06	4.6
PBCS	34.83	15.63	Progress Software Corp. (H)	33.25	1.75	2.8
RMBO	30.00	33.75	Rambo Technologies Inc	20.75	4.00	3.4
RFNS	11.50	5.00	Rsa Data Systems Inc	5.13	0.63	13.7
ROSS	5.13	1.75	Ross Systems, Inc.	3.88	0.00	0.0
SAPE	57.88	38.50	Sapient Corp (H)	57.50	3.75	7.3
SCOC	7.25	3.12	SCO Inc.	4.13	0.44	9.6
SEEC	66.88	22.75	Security Dynamics Tech (L)	24.94	-2.25	-8.3

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
SSW	38.88	11.94	Sterling Software Inc	25.94	0.88	3.5
SDRC	30.00	15.25	Structr Dynamics Research	24.38	2.61	10.3
SYBS	23.63	8.88	Sybase Inc	9.13	0.48	4.3
SYMC	29.38	12.00	Symantec Corp	26.88	0.63	2.2
SNPS	47.19	34.38	SynOpsys	38.06	4.88	15.7
SSAC	17.63	4.06	System Software Assoc	7.69	-0.38	-4.7
SYSF	14.50	3.86	Systemsoft Corp	4.00	0.31	8.2
BAANF	52.38	22.69	The Baan Co (H)	52.56	5.44	11.5
TRUV	5.19	1.38	Truevision Corp	2.25	-0.09	-4.8
VSIO	80.13	19.75	Visio Corp	66.00	4.50	10.8
WALR	30.44	11.50	Walker Interactive Systems	19.88	1.13	5.8
WALL	29.13	11.21	Wall Data Inc.	14.86	0.12	0.8
WANG	52.25	19.06	Wang Laboratories Inc.	38.69	1.94	6.1

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
AMZN	108.00	11.75	Amazon.com (H)	94.81	0.31	0.3
AOL	76.38	21.88	America On-Line (H)	73.75	-0.38	-0.5
ATHM	80.13	19.63	At Home Corp	32.81	3.44	18.6
EDFY	22.13	6.86	Edify Corp	11.06	-0.25	2.2
EXCT	91.21	7.50	Excite, Inc. (H)	78.25	17.44	38.7
SEEK	45.06	4.38	Infoseek Corp (H)	38.50	16.25	69.8
LCOS	79.13	11.13	Lycos Inc. (H)	69.38	4.38	2.0
NSCP	69.50	14.88	Netscape Comm Corp	23.63	6.44	37.3
NSOL	69.00	11.75	Network Solution Inc (H)	44.06	2.13	5.1
OMKT	79.13	6.36	Open Market Inc. (H)	27.00	6.06	29.0
PEGS	38.50	12.50	Pegasus Systems	27.63	3.38	9.4
PSIX	19.88	4.25	PSINet (H)	13.50	6.93	4.8
QDEK	3.50	1.19	Quarterdeck Corp	1.41	-0.00	-0.1
SCUR	19.25	5.38	Secure Computing Corp	13.44	0.00	7.0
SPYG	15.38	4.08	Spyglass Inc. (H)	12.25	1.25	56.1
YHOO	129.63	16.63	Yahoo! Inc. (H)	121.00	11.88	10.8

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
AMD	45.75	17.13	Advanced Micro Devices	26.25	1.00	-3.7
ADI	37.38	22.75	Analog Devices Inc (H)	36.50	2.38	3.0
CRUS	17.75	8.00	Cirrus Logic	10.06	0.34	3.5
CY	10.94	7.38	Cypress Semiconductor Corp	9.63	0.19	2.0
INTC	102.00	69.50	Intel Corp	75.19	1.19	1.8
LSCC	34.88	39.75	Lattice Semiconductor	47.75	-8.63	1.5
LSI	46.88	18.63	LSI Logic Corp	25.88	0.31	1.2
MCRL	46.88	19.11	Micrel Semiconductor Inc	38.13	1.00	2.8
MU	60.06	22.00	Micron Technology	38.19	5.88	1.3
MOT	80.88	22.00	Motorola Inc.	56.31	2.38	4.4
NSM	42.88	19.50	National Semiconductor	22.94	1.13	5.2
RMBS	86.75	86.86	Rambus Inc	63.25	1.75	3.9
TXN	71.25	19.56	Texas Instruments	58.06	3.69	10.9
VLSI	58.06	17.06	VLSI Technology	19.44	1.00	3.8
XLNX	58.50	69.50	Xilinx	42.13	2.81	7.2

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
ADPT	54.25	19.08	Adaptec Inc	19.94	6.25	1.3
APCC	94.38	15.25	American Power Conversion	32.75	3.31	11.3
CREAF	29.56	12.63	Creative Technology Ltd.	22.28	-0.47	2.1
RACE	19.75	1.44	Data Race Inc	1.78	0.19	11.8
DTM	13.13	7.88	Datotek Corp	11.75	0.00	0.0
EMC	69.75	18.19	EMC Corp	38.75	6.00	0.0
EMLX	21.25	9.00	Emulex Corp	8.25	0.63	7.0
ESCC	35.88	22.13	Evans and Sutherland	28.75	1.38	5.7
EXBT	19.88	5.63	Exabyte	11.56	2.81	63.1
ISLF	1.88	0.69	Intelligent Info Systems (L)	0.78	-0.09	10.7
IOM	19.75	6.31	Iomega Corp	7.06	0.44	6.7
IPLS	2.81	0.94	IPL Systems Inc.	2.06	0.00	3.1
KMAG	35.38	11.75	Komag Inc	14.94	1.13	8.1
MTSI	34.88	13.00	Micro Touch Systems Inc	19.94	1.38	6.5
MTIC	17.86	3.94	MTI Technology Corp	15.19	-0.94	5.8
AQM	25.06	2.25	QMS Inc.	4.50	0.88	0.1
QNTM	43.25	17.75	Quantum Corp	34.38	2.38	31.9
RDUS	8.13	1.88	Radius Inc. (H)	4.38	-0.25	5.4
SEG	54.25	17.75	Seagate Technology	27.19	3.00	12.4
SOS	14.38	3.00	Storage Computer Corp	6.25	-0.25	3.6
STK	61.06	33.25	Storage Technology (H)	39.94	1.94	2.3
TEB	86.19	33.94	Tottenko Inc	42.25	0.19	-0.4
WDC	54.75	14.38	Western Digital Corp	18.75	0.38	2.0
XIRX	114.38	56.13	Xircom Corp	107.00	4.00	3.8

Ecch	52-Week	Range		Apr 17 Wk Net Chng	Wk Pct Change
AMST	30.06	17.63	American Mgmt Systems	28.50	0.75	2.7
ANLY	36.30	15.88	Analysis Int.	29.19	0.38	1.1
AUD	39.06	26.56	Auto Data Processing	68.63	1.31	2.0
CATP	54.06	22.25	Cambridge Tech. Partners (H)	53.31	2.94	5.8
CEN	38.25	19.00	Camsoft Corp (H)	57.31	2.25	8.0
COO	44.13	13.00	Computer Int	43.38	1.13	2.7
CPU	38.00	16.25	CompUSA Inc.	19.31	0.33	9.2
CMRZ	53.50	21.13	Computer Horizons	40.44	4.63	10.7
CSC	56.75	28.94	Computer Sciences	51.06	-0.81	3.5
TSK	49.50	21.00	Computer Task Group	19.56	4.31	12.2
EGGS	12.75	3.86	Eggshead Discount Software	9.88	1.00	11.3
EDS	80.00	29.56	Electronic Data Systems Corp	42.06	1.44	3.3
ICQ	19.61	19.75	Inacom Corp	38.50	0.69	2.5
INEL	7.50	2.25	Intelligent Electronics	7.44	0.00	0.9
IEFA	51.50	18.63	Keane Inc.	53.69	3.81	5.2
MHCA	29.75	10.00	Michaels Inc.	14.75	1.63	12.8
PAYX	39.75	27.75	Paychex	57.38	-0.38	-0.9
PMS	86.69	41.00	Policy Management Sys	76.13	0.38	0.7
REY	24.86	13.75	Reynolds and Reynolds	23.13	0.00	0.3
SCBI	29.50	11.13	SCB Computer Tech Inc	26.00	0.38	2.0
SEIC	76.86	38.75	SEI Corp (H)	74.25	7.25	10.8
SMS	82.86	19.75	Shared Medical Systems	79.31	-0.06	0.1
SSPE	24.25	10.00	Software Spectrum Inc	21.06	0.38	4.3
SDS	85.06	20.75	Sungard Data Systems (H)	38.25	-0.13	0.1
VSTI	17.25	9.75	VanStar Corp	12.19	0.31	2.6

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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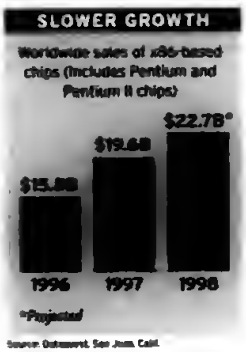
PC profits hit, demand slows

▸ *Users say they don't need the latest, greatest*

By April Jacobs and Kim Girard

THE UPS AND DOWNS of the PC market — mostly downs of late — are tied to rampant price cutting, changes in user purchasing behaviors and vendors struggling with new sales and distribution models.

The result is larger than usual fluctuations in what is still a healthy PC market overall — albeit a less profitable one.



A prime factor here is that users are either focusing on low-end purchases or holding off entirely on upgrades.

The constant din of price cutting has users divided in their strategies for dealing with this. Some are sticking to their core suppliers — and looking to them for the best deals possible. Most said they wouldn't switch vendors for price alone.

Michael H. McLaughlin, chief information officer at GFT USA, a New York-based clothing maker with 500 mostly 100-MHz Pentium Compaq Computer Corp. desktops is sticking with Compaq. "Higher-speed equipment has allowed users to run ahead of the pack, but it forces us into a spiral of having to spend more and more money on hardware," he said. "We are not looking to continue to spend willy-nilly on unnecessary changes on the desktop."

And more users are finding that they don't need the latest and greatest PCs. Instead, they are riding the price curve down and buying machines for hundreds of dollars less than the introductory $3,000 that a new chip-release PC costs.

Lower demand also may be the result of users trying to extend life cycles. "Some people believe two years is the life cycle on the desktop; we're trying to go three years," said Jim Lisiak, technology planner at Chevron Information Technology Co. in San Ramon, Calif.

"Right now, hardware is a very low priority," he said. "It's not so much the processor anymore but the upgrading of the back end of the network that takes so much time."

Overall, the market is still growing — but user decisions may be costing profits. For example, Intel Corp. and Compaq were stellar performers in the past. But Santa Clara, Calif.-based Intel reported a 35% drop in first-quarter net income and plans 3,000 layoffs through attrition. And Compaq said net income was $16 million for the first quarter this year, down from net income of $414 million in the same period last year. (see chart).

TROUBLE IN PARADISE

AMD	-$55.8M (Q1 1998)	-329%
Western Digital	-$145M (Q1 1998)	-326%
Quantum	-$32.2M (Q3 1998)	-161%
Seagate	-$129M (Q3 1998)	-150%
Compaq	$16M (Q1 1998)	-95%
Intel	$1.3B (Q1 1998)	-35%
Micron	$25M (Q2 1998)	-11%

Source: Company reports

So while Intel pointed to lower than normal demand for processors as a cause for weaker earnings, Compaq scurried to get rid of PCs that were stuffed into its channels.

Analysts also said the PC maker is struggling to compete with direct-sell rival Dell Computer Corp., which can respond quickly to market changes and doesn't have middlemen in the channel with margins to make.

Still, Mike Murphy, editor of "The California Technology Stock Letter," said the PC market is healthy, despite shifts at Compaq and Intel. "Last year, 80 million PCs shipped," he said. "The lowest estimate for 1998 is 90.5 million — the real number will be up to 94 million. That's still 13% to 15% growth." Speculation about a PC industry decline is off the mark, Murphy said. □

Judge: Intel abused monopoly power

A FEDERAL JUDGE'S initial findings in a suit filed against Intel may have just cocked the loaded gun that the Federal Trade Commission (FTC) has aimed at the chip giant.

Government regulators are turning an interested eye toward U.S. District Court Judge Edwin L. Nelson's preliminary ruling last week that Intel Corp. abused its monopoly power by withholding information from Intergraph Corp., one of its own customers.

ANTITRUST BATTLES

FTC PROBE

Intergraph, which largely depends on advance information about Intel's technology, had slapped the chip maker with an antitrust lawsuit in what has become a chain of antitrust litigation trailing the company.

The FTC is investigating Intel on a range of antitrust issues.

"Standing on its own, an instance of refusing to give someone information isn't bad if it's your information," said Gerald Jenkins, an antitrust lawyer and a partner at Goldberg, Cohn, Bell, Black, Rosenbloom & Moritz in Chicago.

"But if it's part of an overall pattern, it could add weight and could push the FTC over the top in terms of finding a violation," Jenkins said.

He said Intel "may be pushing the margins of what they think is appropriate, because it's appropriate to make the most money they can."

Intel executives said they will appeal last week's ruling, which focuses on charges that Intel used its monopolistic might to shoulder into Intergraph's workstation and circuitry markets. Nelson said Intel's moves are reminiscent of its previous strategy with Digital Equipment Corp., which sued Intel for patent infringement. That suit was settled.

In the Intergraph case, a preliminary injunction issued April 13 by the U.S. District Court, Northern District of Alabama, specified that Huntsville, Ala.-based Intergraph will get the following: advance product information from Intel, advance microprocessor chip samples, early production chips and production chips.

Intergraph CEO Jim Meadlock said the court order is a pivotal one for the industry as a whole, but analysts are more skeptical.

INTERGRAPH VICTORY

Roger Kay, an analyst at Framingham, Mass.-based International Data Corp., called the ruling a short-term victory for Intergraph.

He said it may prove favorable only in the long run because the judge is considering Intel's processors "essential facilities," which would give many of Intel's customers access to information needed to develop products based on those processors.

"If Intel's processors are being deemed essential facilities, it puts substantial constraints on what [Intel] can do. They will have to make their specifications available to almost anyone," Kay said. □

By Computerworld Staff, Sharon Gaudin, April Jacobs and Kim S. Nash

Windows 98 debut may draw business users, given NT delays

By Patrick Thibodeau

MICROSOFT CORP. last week underlined what it had already signaled, officially announcing that Windows 98 will be released June 25.

The $109 retail price for the Windows 98 upgrade will probably be discounted by retailers, possibly to about $89 — the same price Windows 95 has been going for at most retail outlets.

MOOT POINT

Microsoft is targeting Windows NT at corporate users and positioning Windows 98 for consumers. Therefore, the release of Windows 98 may be something of a moot point for that market.

But ongoing delays stalling Windows NT 5.0's release may push some business users toward Windows 98.

Meanwhile, users considering a Windows 98 upgrade are faced with a debate about whether the upgrade to the new operating system is really worth it.

Besides those questions, Windows 98 is being released amid a bushelful of thorny legal issues.

Congress and several states are conducting ongoing probes into Microsoft's business practices, looking for possible antitrust violations.

The $109 retail price for the Windows 98 upgrade will likely be discounted by retailers, possibly to about $89.

How these investigations will affect Microsoft and Windows 98 remains unclear.

The company met with Department of Justice officials two weeks ago. The next scheduled court date for Microsoft and the Justice Department is tomorrow. □

COMDEX/SPRING '98

Direct sales keep Dell on top

By Kim Girard

INTEL CORP. is cutting jobs, Compaq Computer Corp. is tackling inventory glut, the Asian PC market has taken a nosedive and Wall Street is heeding warnings about a slowdown in the technology sector.

But from Dell Computer Corp. CEO Michael Dell's perch — one that boasts revenue exceeding $9.8 billion over the past four quarters — the industry is humming along just fine.

"The overall market continues to be pretty healthy, and end-user demand continues to grow," Dell said in an interview last week.

He said he expects the new 350- and 400-MHz Pentium II PCs to help boost momentum.

In the overall corporate desktop PC market, Round Rock, Texas-based Dell hotly competes with Compaq and IBM for U.S. corporate desktops. Dell sells more than $2 million per day online.

Responding to the Dell direct sales model, IBM has already shifted to offer customers the option to build to order. And top seller Compaq is struggling to change its complex channel distribution model to build-to-order, an effort that has resulted in inventory problems.

KEEP IT LEAN

"Given that the value of this inventory declines 1% per week, if you are caught [with excess inventory], you've got a real problem," Dell said.

Compaq is finding that "the change is more than [Compaq CEO] Eckhard Pfeiffer standing up and saying, 'We're going to change channel strategy,' " said Kevin Hause, an analyst at International Data Corp. in Framingham, Mass.

By contrast, Dell is "doing phenomenally well" with direct sales, said Ashok Kumar, an analyst at Piper Jaffray Cos. in Philadelphia. To offset the PC price plunge, Dell is moving to a different product mix by increasing revenue from servers, workstations and notebooks from 31% to 45%, Kumar said.

But in the workstation market Dell has work ahead; about 80% of the market is now held by Sun Microsystems, Inc., Digital Equipment Corp., Hewlett-Packard Co. and IBM.

Despite Dell's sales lead, "there's a part of the buying population that's not as aware of Dell as we would like," Dell said. "We're out to eliminate that notion." Analysts said there is plenty of room for his company to grow, because only about a quarter of PCs in the U.S. sold go through the direct channel.

But one user whose company has about 500 PCs on a Token Ring network said he is content with pricing and service offered by Compaq, which provides the higher-end support it needs. To switch, "we'd have to look at potential cost savings, and that would mean savings across the board," said Michael H McLaughlin, CIO at GFT USA, a New York clothing maker. □

Pentium II PCs rocket

By Chris DeVoney

PRODUCT REVIEW

▶ *E-4200 400*

GATEWAY 2000, INC.
North Sioux City, S.D.
www.gateway.com

OVERALL GRADE A-

THE PERFORMANCE of the high-end Intel Corp. Pentium II PCs, announced last week, easily justifies their not-unreasonable price.

The 400-MHz Gateway 2000, Inc. E-4200 I examined ran about 17% faster than the average for comparable 333-MHz Pentium IIs, under the Bapco Sysmark 32 benchmark.

That represents a solid enough improvement over its predecessors to rate this representative 400-MHz machine as a good buy, particularly when the price for top-end computers has dropped by about $1,000 in eight months. The Gateway model costs $3,059, making it one of the more expensive machines, but it comes with 128M bytes of memory and a 19-in. monitor. The PC also features the new Intel BX motherboard, which runs a 100-MHz bus to memory and a 132-MHz advanced graphics port video card.

Not all users will effectively harness the power of these 400-MHz thoroughbreds. They are good for programmers who wait several minutes for each compilation of their programs; analysts and accountants whose spreadsheets take scores of seconds for each recalculation; CAD users; and Web site or multimedia designers.

The 400-MHz Pentium II also is well-suited for power users, those office users who have three or more major applications running at once. In the long-term, these machines should have the horsepower to run any office software that might emerge in the next three to four years. That gives the system a healthy life expectancy.

But don't jump at the 400-MHz if your users are limited to mundane tasks and seldom wait for the CPU to compute. □

DeVoney is a reviewer in Seattle. He can be reached at chrisd@cybercritic.com.

Pumping up older PCs

CONTINUED FROM PAGE 1

tasks remotely that now can be done only on new PCs.

The tool is due for release in August or September. It could include features that would let managers "wake up" an idle PC to fix it. Installed on a group of desktops, the tool also could help managers track PC assets in remote offices.

Analysts and users said the product would have a dramatic impact on corporate enterprise desktop management, because one of the biggest problems they face is managing older desktops.

Observers said systems built before last year, including older Pentium-based models, generally lack those kinds of management tools.

John Delta, director of operations at the Nasdaq Stock Market in Washington, said managing older PCs would be extremely helpful because few companies have all-new hardware. "We're still supporting 90-MHz Pentiums and probably will be for at least another year," he said.

The sources said the software tool would sit on a Windows operating system — as early as Windows 3.1 for older PCs — and would work with Intel-based models as old as the 486-based vintage.

Word of the ownership advance for older desktops came as the latest models, which feature the same management tools, were hitting the stage at a press conference last week in New York.

The baseline management specification for PCs would include tools for:

- Configuration management
- Security management
- Fault management
- Asset management

Intel, along with IBM, Compaq Computer Corp. and Dell Computer Corp., announced PCs based on Intel's 350- and 400-MHz Pentium II processors.

The machines are due to be released next week.

Systems management was a major theme. For example, Dell's new OptiPlex desktops include tools for remote booting and security that are embedded in the PC's BIOS.

A systems administrator would be able to wake up the machine to repair it and put an electronic ownership tag on it.

Those features are part of what Intel officials called a baseline PC management specification. Edward Ekstrom, general manager of Intel's systems management division, said the specification needs support from all the major PC vendors to make it work.

Dell, IBM and Compaq have committed their support in a group Intel calls the Advanced Management Alliance. IBM is working on a tool for older PCs, but Compaq and Dell declined to comment.

Users said they support the vendors' effort to build a PC management standard.

"Finally going forward and having standards would be a relief when you're trying to manage the enterprise," said Clement Contestable, hardware/software acquisitions manager at AT&T Corp.'s supplier management division in Lake Mary, Fla. "And if they are going to extend their tools to legacy systems, it will be a big plus." □

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The Back Page

Dispatches & images from the fringes of the electronic frontier

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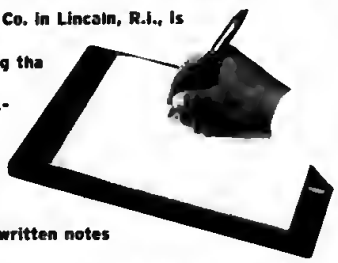
THE PERSONAL DIGITAL NOTEPAD



A. T. Cross Co. in Lincoln, R.I., is now shipping the $399 Cross-Pad, which captures a user's handwritten notes for transfer to a PC. The special pen has a radio transmitter that sends the handwritten notes — through the paper — to a 1M-byte flash ROM chip underneath. After uploading to a PC, IBM's Ink-Manager software displays the notes and sketches.

About time: New software for the TRS-80

Jeffrey Henning found a Tandy/Radio Shack TRS-80 Model 1 microcomputer in his basement and just had to see if it still worked. But no one has written software for it in at least 10 years. So Henning, chief technology officer at Perseus Development, wrote a "lite" version of the company's survey software to fit the TRS-80's 4K-byte RAM limit. "We're taking backward compatibility to a new level," he says. The source code is at *www.perseus.com/trs-80/*.

SNIFFER CHIP FOR AUTO FUMES

Researchers in Europe are developing a tiny "electronic nose" to monitor the interior air quality and exterior emissions of automobiles to see if they meet government regulations. The environmental sensor on a chip is part of the Brite EuRam project, coordinated by engineering professor Julian Gardner (pictured) at the University of Warwick in England. Automaker Fiat expects to install the chips in about 1 million cars by the end of the decade. One spin-off application: testing air quality in homes.

Inside Lines

Who's afraid of Y2K?

Concerned about air travel when the millennium changes? A top Federal Aviation Administration official is fastening his seat belt in case of date-change turbulence. Ray Long, the FAA's year 2000 program office director, said he will monitor his work from an airplane on the evening of Dec. 31, 1999. Long said he will be on a regularly scheduled transcontinental flight when computer clocks click over to Jan. 1, 2000.

It gets worse?

The corporation that was Visix Software has dissolved. But its executors are still tightly guarding the defunct company's secrets. When one Visix user recently posted an offer to provide Visix Galaxy source code in a Galaxy user group, he received an E-mail from Visix President Deborah Luth Bedell that stated, "Your blatant disregard of your [confidentiality agreement] obligations has the potential to cause severe damage to Visix."

Thanks for clarifying that

Microsoft is rating some of its products on their year 2000 compliance. In a press conference last week, Jason Matusow, Microsoft year 2000 strategy manager, addressed problems with Word 5 for DOS. He noted that if a file is created after the year 2000, the file format will be corrupted and will eventually tear down the operating system. "This does not meet our compliance standards," he said.

I'm a Navigator, you're a Navigator

Netscape is apparently going to have to share the Navigator name with MineShare, a start-up that announced a data mart software suite last week. Its data analysis tool is called MineShare Navigator, and co-founder David Mariani said he doesn't fear any legal strikes by Netscape over the moniker. "We own it, dammit," he said. MineShare may consider changing the name, but Mariani said that its second choice presented the same kind of overlap. That name: Explorer.

Virtually yours

The choices users have for building virtual private networks (VPN) will grow this week as networking power Ascend Communications enters the market with products for users and service providers that are designed to make VPNs easy to use. Heavy hitter VPnet Technologies is expected to join Ascend in unveiling VPN wares this week. The news comes just one week after 3Com announced additional VPN technology features for its router line.

Mayday!

Here's another potential disaster to put on the help-desk calendar along with those date-triggered viruses. A group allied with Mexico's Zapatista National Liberation Army is seeking worldwide electronic insurrection on May 10, the FBI said last week. The group urges those sympathetic with the revolutionaries to swamp government and bank computer systems in the U.S. and Mexico via the Internet on that day.

Microsoft tool updates

Microsoft is expected to roll out new versions of Visual C++ and Visual Basic development tools in June. And Inside reports hold that each new version will bring the tools' environments closer to a shared common ground.

Friday was "Geek Pride Day" in Albany, N.Y. Engineers, bitheads and fellow travelers were invited to come out of the cubicle to network (in the "real world" sense), answer trivia questions and play "Pin the Subpoena on Bill Gates." A World Wide Web designer and host of a local public radio show called "Geek Nation" instigated the brew-pub gathering. The theme: "I'm a geek, and that's OK." If you have news bits to share, contact News Editor Patricia Keefe at (508) 820-8183 or via E-mail at patricia_keefe@cw.com.

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